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WHO BESTOWS A FORTUNE ON THE UNIVERSITY HIS BROTHER FOUNDED

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36 The Curious Case of Thomas Welton Stanford
It’s one thing to host regular séances in which a medium summons ghosts and objects from the spirit realm. It’s another to donate money to the university your big brother founded on the condition that it scientifically study the phenomena.

46 Freefall
Democracy, some scholars say, is in recession worldwide. They talk about its prospects, whether a new form of government could replace it and the importance of the United States as a bellwether.

52 Sleep and Genes
As sleep research at Stanford approaches its 50th birthday, a new generation of scientists are using biomedical tools to shed light on nightmares, narcolepsy, lucid dreams, and the nexus between sleep and health.
ALL RIGHT NOW

19 A Pearl Harbor survivor remembers
23 Leland Sr., senior disruptor
25 Cancer’s chances
26 Sexual assault survey
30 Reunited

IN PRACTICE
Former Super Bowl linebacker Milt McColl, ’81, MD ’88, tackles medicine.
page 21

DEPARTMENTS
4 Dialogue
8 Editor’s Note: Founders’ day
10 President’s Column: On the horizon
12 1,000 Words: Seeing the forest
58 Biblio File: Much ado about nothing
65 Farewells
71 Classifieds
72 Postscript: As luck would have it

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My Stanford degree is a PhD in economics. I found the article to be an accurate analysis in many respects. But I was struck by two issues. First, there was hardly any attention to the fact that a very high percentage of new jobs are gig, contract or temporary—without benefits like health insurance or a pension or even a 401(k)-type retirement fund. Second, I found no discussion of a universal basic income (UBI). This despite the fact that Stanford has a Center for Ethics in Society that has held seminars with some of the leading analysts of UBI. Why?

Peter Knight, MA ’66, PhD ’70
Rio de Janeiro, Brazil

As I watch my niece and nephew who are both millennials, I notice that they’re both minimalistic. They live in small enclosures and seem to be happy with them.

Much could be accomplished by rethinking human habitation. Instead of constructing single-family dwellings, why not starter homes with 400, 600, 800 square feet? Why not study what type of housing and community make for a happier and more supported human being? It could be that communities centered around shops and schools and, yes, even high rises could be the wave of the future. This would encourage more walking.

And why not rapid transit to go from one community to another? Human habitation will have to come to this, if we’re going to avert climate change and the overuse of fossil fuel.

In my 20s, I calculated the rate of miles I traveled in my car and divided it by the hours I worked in order to make the money to buy and maintain it. The result was the same as if I had walked. So our fast hurry is a big nothing.

Carmen Fojo, MS ’74
Los Osos, California

The situation may not be as bad as painted in the article. No doubt the difficult individual circumstances of Milton Sólorzano and Amanda Gelender are accurately portrayed, but supporting a case with anecdotal evidence is generally easy to do. The article quotes David Grusky, the director of Stanford’s Center on Poverty and Inequality, in support of the central thesis. But one has to wonder about the mission of such an organization.

Edward Lazear, former chair of the President’s Council of Economic Advisers and a professor at the Graduate School of Business, shows evidence in a Wall Street Journal essay in support of his statement that “the employment and wage statistics suggest that the slack associated with the 2007–2009 recession is all but eliminated.” Jack Kelly writes in Forbes
They say a picture is worth a thousand words, but pictures don’t begin to tell the story.

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about a study by Coldwell Banker that concludes that by 2030, millennials will hold five times as much wealth as they hold today and are expected to inherit over $68 trillion.

A big risk is that we overstate the problem and end up with governmental action to “fix it” with social and economic engineering, as is implied in Grusky’s comment “We just need to direct [markets] in a different way.” Sorry, no.

Refreshingly, Lee Ohanian’s comments were included in the article, and they make a lot of sense: Let the marketplace work. Yes, please.

Lee Ohanian of the Hoover Institution is paraphrased as saying that millennials’ prospects could be improved through less regulation in health care, housing and education. Let people choose the type of health care they want. Let parents pick which schools their children attend. Let builders build regardless of current zoning. Rely on the magic of the marketplace! Free choice and free enterprise, unchained!

It’s astounding that anyone could promote such notions amidst the current series of market-driven disasters, including the financial crash of 2008 (the aftereffects of which are still being felt), the massive export of jobs, the ongoing and worsening crisis in housing and homelessness, and the opioid addiction epidemic. And the noble-sounding slogan of free choice ignores the fact that tens of millions of Americans don’t have free choice because they are struggling to stay afloat and lack the resources to send their children to the best schools, buy a home in any neighborhood at all (high density does not mean low prices) or afford any health care in an unregulated market.

It’s been said that economics is voodoo with computers. To this must be added that all too often it is ideology masquerading as science.

Seeking Answers
The September cover story profiled four families who sought help for their children through the Undiagnosed Diseases Network.

All credit to Stanford’s participation in the UDN, but, like many articles in STANFORD, the report on efforts to diagnose unknown diseases raises more questions than it
answers. Are diseases resulting from genetic mutations more prevalent in today’s environment than they have been in the past? Or, with the aid of more sophisticated diagnostic tools, are they simply being recognized for what they are?

James Madison, ‘53, LLB ‘59
Menlo Park, California

Good Luck with That
The cover story in the July issue discussed ethical challenges in the field of artificial intelligence.

It seems ironic, having arrived at a post-truth culture in which moral absolutes have been jettisoned in favor of moral relativism, that we are facing the thorny issue of ethics as it applies to artificial intelligence. As the Stanford article observes, “It’s necessary for us to develop real-world standards.” However, by definition a post-truth worldview elevates preferences and feelings above facts and truth. So if we can’t even agree on ethical or moral absolutes on a human level, how can we possibly begin to establish standards by which AI systems will operate?

In a post-truth culture, when your preferences and my preferences don’t agree with each other, the deciding factor will be: Who has the most power? And so we are now seeing this play out in Silicon Valley, where powerful high-tech corporations managed and staffed by graduates of prestigious universities are being accused by internal whistle-blowers of forced groupthink, intimidation, bullying, algorithmic bias, political ideology and hypocrisy, and where external customers are complaining of blacklisting, biased suspending of accounts, delisting and censorship.

Good luck to the brave (or foolhardy) computer science professors who are trying to teach ethics and standards to students who are daily bombarded by an ethos of moral relativism, individual autonomy, and the subversion of truth to preferences and feelings.

David Mackie, MS ’78
Alberta, Canada

Don’t Draw Distinctions
Articles in the May and September issues discussed the admissions fraud scheme perpetrated at several universities nationwide, including Stanford.

It is time to change Stanford’s admission policies. No more preferences for alumni, athletes or donors. Race and class neutral. All applicants admitted or rejected on the same criteria.

Thomas Welch, ’66, MA ’67
Troy, Michigan

CORRECTION
The obituary for professor of education Edwin Bridges (July) should have included his son Bruce in the list of survivors.

Got Plates?

Karen Sipprell, ’82

No, but my boat is named “Cardinal Rule.”

Catherine Miskow, MA ’99

Mine is SLITKALSTHROAT ANDDRINKITSBLOOD. Florida is more flexible about these things.

Glenn Garvin, ’75

See more (real) submissions at alu.ms/myplates.

October 17, 1989
Where were you during Loma Prieta?

In my room at Roble, the year after it had been renovated for seismic upgrades.

Linda Cheu, ’92

I was running the Dish with fellow alums Ceci Hopp St. Geme [’85, MA ’86] and PattiSue Plumer [’85, JD ’89]. There was a loud sound and the ground came up; I thought I was fainting. When I realized it was an earthquake, I SPRINTED to check on my then-3-month-old baby, Jack Mosbacher, ’12.

Nancy Ditz Mosbacher, ’76

Sybil (NY)
“Following my divorce this year I began dating again at age 50. I began using your 10:13 six months ago and am currently juggling three attractive men and haven’t had this kind of attention in decades!”

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The Fascinating Founding Family

Leland Sr.’s drive to conquer a continent and his youngest brother’s belief in the occult are just two of the mesmerizing tales to tell.

WHEN A BOOK called American Disruptor: The Scandalous Life of Leland Stanford came across my desk, I rolled my eyes a little. I mean, invoking the Silicon Valley vernacular seems like clever marketing, but really, when does a transportation system that links far-flung territories not disrupt? And “scandalous” didn’t ring quite true—exploitative, yes; salacious, no. I thought I might detect the work of a dirty Golden Bear or two. (The book was written by Cal alum Roland De Wolk and published by UC Press.)

Nevertheless, it seemed an important biography of the university’s co-founder. So I sent the book to writer Sam Scott, who I knew would supply a candid assessment. After one chapter, he emailed me: “Spidey sense says it’s pretty good, which isn’t always equal measure. You can find these and more at stanfordmag.org/collections/the-stanfords.

The Scandalous Life of Leland Stanford

Sam’s article on page 23 is the latest of many we’ve run over the years about our founding family. We’ve written about Jane Stanford’s decision to limit the enrollment of women to 500 and about whether she was murdered in a plot masterminded by the university’s first president, David Starr Jordan. We’ve covered how Leland trained his beloved trotting horses on the Farm and how he feuded with Stanford’s original architect, Frederick Law Olmsted. And we’ve delved into the brief life of university namesake Leland Jr., who loved animals and archaeology in equal measure. You can find these and more at stanfordmag.org/collections/the-stanfords.

In this issue, you’ll meet another member of the clan: Thomas Welton Stanford, Leland’s youngest brother. Welton, as he was known, pursued spiritualism—commissioning famous mediums to convene séances and summon the spirits of the dead—and encouraged his sister-in-law Jane to do the same. Both hoped to remedy profound grief. Jane Stanford desperately wished to communicate with her late son; Welton with his deceased wife and brother DeWitt.

But unlike Jane Stanford, who turned away from the practice when it didn’t produce the desired result, Welton was a true believer, and he wanted scientific proof that the objects and visions that materialized during séances were authentic. So he donated £10,000 to Stanford to endow a fellowship in “psychical research”—which represented both an enormous sum and a scholarly conundrum for the fledgling university. You can find out what happened next in our article on page 36.

I won’t reveal all the mysteries contained therein, but suffice it to say I’ve never before read a ghost story that involved a control group.

“The Curious Case of Thomas Welton Stanford” was painstakingly researched, written and illustrated by graphic novelist Jonathan Fetter-Vorm, ’05. Jonathan has told a story in these pages once before—a 1931 road trip during which a Stanford sociologist and two Chinese grad students examined whether Americans’ racial attitudes differed from their actions.

We’ve been wanting him to do a second article for us ever since, and this time, he even designed the magazine cover in graphic-novel format. Kinda disruptive, eh? ■

Email Kathy at kathyz@stanford.edu.
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Accelerating Stanford’s Impact

A new institutional vision offers fresh opportunities for learning and research.

For many of us, the approach of a new year means reflections on the recent past and plans for the next few months. At Stanford, though, we look back more than a hundred years, to our founders’ charge to serve “humanity and civilization.” Likewise, the horizon ahead extends much further, to a future with unlimited possibilities.

Guided by a powerful new institutional vision—the product of energy and imagination from across our community—Stanford is aggressively pursuing new opportunities for learning and research. This vision was molded over the past two years. Faculty-led groups analyzed more than 2,800 proposals and made recommendations, the university leadership established priorities, and design teams then developed specific plans.

The themes of this vision are accelerating impact and transforming education. True to our roots, it focuses on magnifying Stanford’s beneficial impact in the world, with an emphasis on meeting the scale and urgency of the challenges ahead. Our vision can be summed up in this sentence: Fueled by optimism, ingenuity and a sense of responsibility, we seek to accelerate our purposeful impact in the world.

As we implement this vision, I’m excited by the work now underway. Some examples:

Reflecting our commitment to fundamental scholarship, multiple initiatives empower discovery and creativity—from the arts and humanities to the social sciences, natural sciences and engineering. We’re also working to apply Stanford’s strengths in data science to stoke research across the academic spectrum.

Our planet, health and society face many challenges. So our vision also focuses on accelerating solutions to address these challenges. Sustainability is one area in which our faculty are developing plans to devise zero-emissions energy solutions, data-driven adaptation and resilience strategies, and other initiatives to meet the urgent challenges of climate change.

Innovation alone is insufficient. We also have a responsibility to consider the societal and ethical impact of our work. So our vision explicitly acknowledges the need to embed ethics in innovation. We see this at the newly launched Stanford Institute for Human-Centered Artificial Intelligence, which draws from across campus to understand and guide the impact of AI, possibly the most consequential technology of this century.

We’re taking steps to transform learning, from classroom to dorm. To offer our students a rich intellectual experience and prepare them to be engaged citizens, our faculty are working to renew our liberal education curriculum. One proposal now under faculty review would implement a new core sequence for first-year students—Citizenship in the 21st Century—that focuses on critical thinking and civil disagreement, and the global dimensions of contemporary challenges. Another proposal would adjust unit requirements for majors to help support academic breadth and exploration.

But our vision also calls upon us to look beyond Stanford and develop new initiatives to advance the science of learning for all students, wherever they are in the world.

Our vision also aims to strengthen support for our campus community. It includes redesigning student residential neighborhoods to create vibrant and supportive communities, while retaining the hallmarks of life on the Farm. It includes new efforts to mitigate affordability concerns for our community, the focus of a task force now at work. And it emphasizes access and inclusion in everything we do, so that diversity of thought, experience and approach can thrive at Stanford and prepare students for a diverse world.

You’ll be hearing more about these and many other initiatives as they develop. I’m excited and optimistic. From its founding, Stanford has worked to develop new knowledge and anticipate and address challenges in our world. We continue to have the opportunity and—by virtue of our strengths—the responsibility to lead.
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Treeunion

A grove of seven former Trees returned to their roots during Reunion Homecoming. Current and colorful Tree Caroline Kushel, ’21, led the logroll to the stadium, where Stanford felled the Arizona Wildcats 41–31.

PHOTOGRAPH BY DAVID GONZALES, ’93
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WHO WE ARE

Meet Emily Gardner

A powerlifter explores the mysteries of the mind.

“Powerlifting is one of those sports [in which] you’re not working against anyone. Everyone is working together, and everyone supports each other.”
EMILY GARDNER’S DAD LIKED TO LIFT WEIGHTS, so it wasn’t a huge surprise seven years ago when he invited his daughter for a “father-daughter day at the gym.” It was the weekend of Emily’s 13th birthday, and her mom and sister were out of town. “So I’m like, ‘OK,’” she says, wryly. There, at a small gym in Austin, Texas, she was introduced to her future trainer, Seneca. One of the gym’s co-owners and a powerlifter, Seneca showed Gardner the sport’s lifts—squat, bench press and deadlift. After watching her try them out, he declared: “Oh, you’re pretty good at this!”

That turned out to be true. Gardner, ’22, has since competed in three International Powerlifting Federation World Championships, where her 304-pound squat earned her a world record for her weight class (her personal best is 325). She can deadlift 320 pounds and bench-press 215, a versatility that earned her all-around gold in 2016 and silver in 2017.

But for Gardner, powerlifting has never been about winning. Rather, it’s an escape from the intensity of academics—a time she can relax, be silly and talk about comics with the other lifters. (She has a special love for manga and anime.) When she’s ready to reengage, it’s back to the lab, where she’s been doing research in glial cell biology under assistant neurosurgery professor Bradley Zuchero. She declared bioengineering as her major and expects to focus on neuroscience.

“I’ve been forced into a break [from competitive powerlifting] because I tore my ACL when I was trying judo. It was super rough because it was the first quarter of college. And what was worse was that I couldn’t lift, and lifting was my de-stress. But the other powerlifters and weightlifters at the Stanford gym were all very supportive, and it took some of the worry off.”

“This is my first injury. I am slowly working back up to what I was [lifting] before, but it still seems like a long road ahead.”

“My mom said that going to the gym and seeing Seneca was kind of like my therapy session all the time, because he was just super friendly and open. We would talk about everything and anything—school-work, the latest zombie movie, Mars—all sorts of things.”

“The high school I went to—it was super competitive. But I felt that I was able to avoid some of that because I had Seneca telling me, ‘Why should you care what they think? That’s bullshit.’ I [was] like, ‘Yeah, you’re so right.’ He was at a completely different stage in life.”

“In elementary school, I thought I would be a marine biologist. Probably National Geographic videos were what got me. But then I was watching some documentary about orcas that had a picture of their brain. Some scientists were talking about how, because of the size of this one cortex, they could tell that the whales were very social animals. So for a little bit I was like, ‘I’m going to be a neurologist of marine mammals.’ It eventually morphed into a greater interest in neuroscience.”
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Celebrating 56 Years

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LEN GARDNER, MA ’50, was a straight-laced kid from Puritan stock when he joined the Navy to escape the Depression and a dead-end job in his hometown of Amherst, Mass.

So, on December 7, 1941, while many of his shipmates were sleeping off a boozy Saturday night, Gardner was on the deck of the USS Reid just before 8 a.m. with his toothbrush and toiletries. But even stone sober he couldn’t fathom what he was seeing: a fighter plane painted with red circles gliding low before dropping something. And then an unearthly explosion.

It was only when he rushed up to his screaming boss in the bridge that he began to take in the chaos all around Pearl Harbor. “And that was my introduction to World War II,” he says.

Gardner went below to alert the few slumbering crew not on shore leave. “I might have well told them the Martians had landed,” he says.

It was the beginning of a nonstop war for Gardner, whose service ran from the frigid waters of the Aleutian Islands, where the Reid captured some of the first Japanese prisoners of war taken to the United States, to the larger, tropical battles of Midway and Guadalcanal.

As a signalman, he was more observer than combatant, he says. But he has harrowing tales to tell. Once, near New Guinea, the Reid was being hunted at night by a squadron of Japanese bombers. Desperate for camouflage, the destroyer started burning oil to create a blanket of black smoke.

But as dawn neared, a bleak reality threatened. Silhouetted against the rising sun, the ship would be a sitting duck for torpedo planes. In a last-ditch attempt, the destroyer created a ruse with nearby ships, pretending to radio back and forth with a rescuing force of U.S. fighters seemingly just over the horizon. They knew the Japanese monitored their radio messages. And the enemy took them at their word. “They turned tail and ran,” he says. “They could have wiped us all out.”

In peacetime, Gardner returned to Amherst, enrolled in college, met his wife and began a family. His goal of becoming a history professor took him to Stanford, but family needs encouraged a more pragmatic route. His career included roles with the U.S. Naval Research Laboratory, the Polaris submarine program and the National Science Foundation. He retired in 1977 and now lives in Virginia.

For many of those years, he talked little about the war. But he has recently realized the rarity of his experience. At 98, his hearing suffers, but he speaks with lucidity about the events 78 years ago.

This December 7, as usual, he plans to stand in observance of the attacks at the Virginia War Memorial in his home state. He’ll be a featured attendee. “I’m the only one who’s a Pearl Harbor survivor that they’ve got.” —Sam Scott

WAR ON THE WATER: Gardner (right, in 1945) observed the explosion of Pearl Harbor from the deck of the USS Reid in 1941. He is one of the few remaining veterans who witnessed that moment.

When the Bomb Dropped
One alum’s view of Pearl Harbor.
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Doctor, Interrupted

A former 49er comes full circle.

IN THE 1977 South Hills High yearbook from Covina, Calif., Milt McColl posed for the “Most Likely to Succeed” picture in scrubs. Success came early. Practicing medicine? Well, that has been a longer journey. But now McColl, ’81, MD ’88, is finally realizing his childhood ambition as a part-time family and family-planning doctor at Santa Clara Valley Medical Center.

There have been a few distractions along the way. A 6’6” outside linebacker for the Cardinal, McColl made the San Francisco 49ers as a free agent—the same week he got off the wait list at Stanford Medical School. For the next seven years, he juggled med school and an NFL career, much as his dad, Bill, ’52, once had. McColl interned at Valley Med but put an orthopedics residency on hold to work at a medical device start-up. “Then one year turned into 25,” he says.

In that quarter-century, McColl raised four sons with his wife, Cindy (Emanuels, ’81), and served in various business and venture capital roles, most recently as CEO of Gauss Surgical.

He also kept his medical license current. A few years ago, he started volunteering at a San Francisco free clinic, where he relished his interactions with patients. Grappling with a complex case one day, he said to some fellow doctors, “God, I wish I knew more.” They urged him to finally do his residency. McColl mulled the idea for a year. “I knew it was going to be three years of hard work and late nights,” he says.

Having made his decision, McColl convinced the heads of the Stanford Health Care–O’Connor Hospital Family Medicine residency program that he could endure its grueling demands as well as the demotion from corporate CEO to lowly intern. “I told them, ‘I can guarantee that I will not quit,’” he says.

Among his fellow residents, all of whom were young enough to be his kids, McColl was known as the happy resident. When he graduated in June, he was elated. “It meant a lot to me personally, and it meant a lot to other people who took a risk on me,” he says. “It could be in 20 years I think of something else to do, but I feel like this is absolutely the right thing for me to be doing right now.”—Kelli Anderson, ’84

Bifocals Are Boring. Progressives Are Passé.

Meet the autofocals.

Presbyopia—that pesky trouble with small print—often begins in the mid-40s and eventually strikes everyone. Some people make do with drugstore reading glasses, but many embark on decades of optometrist visits and prescription fine-tuning. Progressive lenses provide vision correction at multiple distances but limit depth perception and peripheral acuity, which increases the likelihood of falls and accidents.

The solution? Autofocals: fluid-filled lenses that boast eye-tracking sensors and, like our (younger) eyes, change pressure to adjust focal length. “More than a billion people have presbyopia,” says Gordon Wetzstein, assistant professor of electrical engineering. “We’ve created a pair of autofocal lenses that might one day correct their vision far more effectively than traditional glasses.”

The challenge? Condensing the tech into fashionable tortoiseshell frames. The heavy prototype resembles postapocalyptic headgear, replete with exposed cables and gadgetry. But if society collapses, the risk of falling will likely increase. Maybe the autofocals are perfect just the way they are.
Each year, the Stanford Medicine Alumni Association presents three awards to distinguished alumni for exceptional service to Stanford Medicine and outstanding lifetime contributions to medicine and the biomedical sciences.

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Irving L. Weissman, MD ’65
Director, Stanford Institute for Stem Cell Biology and Regenerative Medicine; Professor of Pathology and of Developmental Biology, Stanford University

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Frank Baldino Jr. Professor of Sleep Medicine; Director, Division of Sleep Medicine, Harvard University

Michael DeBaun, MS ’87, MD ’87
Director, Vanderbilt-McHarry Center for Excellence in Sickle Cell Disease; Professor of Pediatrics and Medicine, Vanderbilt University
A FEW years ago, Audrey Symes, ’02, phoned the Good+Foundation, a New York-based nonprofit that supports low-income families. “They said, ‘The No. 1 thing we need is for people to collect diapers,’” Symes recalls—one in three U.S. families struggles to afford them. Symes knew the frustration of throwing away perfectly good disposable diapers—typically $0.25 a pop—as a child grows into a new size or toilet trains. She put out a call for donations on an Upper East Side moms’ Facebook group: Leave them with your doorman. Soon, Symes was joggling 2-year-old Elizabeth all over Manhattan, stuffing donations under her stroller. In the first week, they collected 1,200 diapers. Three years later, Symes and Elizabeth have hand-collected 30,000 diapers. And together with Barbara Baughman Johnson, ’85, founder of Texas-based diaper bank Hope Supply Co., and Sen. Tina Smith, ’80, Symes helped inspire Senate Resolution 205, which passed unanimously in September and recognizes the importance of diaper banks nationwide.

—Sam Scott

GOOD DIAPER DEEDS
Getting essentials into the hands of parents who need them.

BY AGE 20, Amasa Leland Stanford had cast off his peculiar first name. Often translated as “burden” or “hardship,” Amasa hearkens to a minor Old Testament character—a nephew of King David—distinguished by little else beyond a bloody death.

But by any name, the young man in Roland De Wolk’s American Disruptor: The Scandalous Life of Leland Stanford hardly seemed destined for greatness. “Shirking work, a bit of flimflam, and failing to finish school after school were his marks,” De Wolk writes of a feckless adolescence that gave way to a luckless legal career. In 1852, Stanford’s fledgling law practice in pioneer Wisconsin burned to the dirt, along with all records of monies owed.

He was 28, newly wed, and broke.

And yet less than a decade later, Stanford would emerge not only as governor of the new state of California but also as president of the company racing to submit the nation to the first transcontinental railroad. The old dilettante was gone, a late-blooming bulldog in his place. “[H]e was now a man who had no quit in him,” writes De Wolk, a longtime Bay Area reporter. American Disruptor provides a dense but swift-moving primer on Stanford’s rise from tavern owner’s son to tycoon. As a husband and, later, a father, Stanford was steadfast. As a leader of commerce and of California, De Wolk contends, his values were more pliable. Once in the governor’s office, Stanford’s prioritization of his private railroad over public needs was “explicit enough to anyone paying attention.” In time, Stanford would earn plenty of other names, from “$tealin’ Landford” to U.S. senator.

De Wolk portrays Stanford as both heir to and sire of the kind of disruptive technological upheaval that today confers bragging rights on Silicon Valley start-ups. The opening of the Erie Canal, and later the Mohawk & Hudson railway, thrust his parents’ backwoods tavern into one of the most important business corridors in the nation, transforming the family fortunes. Stanford would unleash a force that would do the same to a whole continent—and in his and his wife’s memorial to their dead son, far beyond.

—Sam Scott

On the Fast Track
Was Leland Stanford really Silicon Valley’s original disruptor?
We invite you to join our open learning community.

Winter registration is underway. Most classes begin the week of January 13. Please visit our website to view the course catalogue and to register.

continuingstudies.stanford.edu

Discounts available for Stanford Alumni Association Members.
Continually Calculating Cancer’s Chances
Stanford researchers take a page from sports-betting playbook.

FOOTBALL FANS who check popular apps like ESPN for updates on games in progress are accustomed to seeing, in addition to the current score, a number indicating “win probability.” By dynamically crunching data based on a set of constantly changing conditions—down and distance, time remaining in the game—and comparing those scenarios with outcomes in thousands of other games, statisticians developed a means of predicting which team is likely to prevail.

Now, researchers at the School of Medicine have borrowed this concept to develop a predictive model that offers cancer patients more insight into their chances of recovery and may improve treatment decisions. Coined CIRI, for Continuous Individualized Risk Index, the algorithm aggregates all data available as treatment proceeds rather than relying on data at one particular moment to determine prognosis. For example, CIRI might assess not only how treatments have affected the size of a tumor, but also levels of cancer DNA in the patient’s blood over time and how these compare with other patients’ levels at similar stages of therapy.

These and other data sets offer a way to continually update a patient’s probable outcomes and give doctors better information when considering potential treatments. “It might tell us, ‘You’re going down the wrong path with this therapy, and this other therapy might be better,’” says Stanford oncologist Ash Alizadeh, MD ‘98, PhD ‘03. “Now we have a mathematical model that might help us identify subsets of patients who are unlikely to do well with standard treatments.”

Alizadeh, an associate professor of medicine, led the research team along with associate professor of radiation oncology Maximilian Diehn, MD ‘01, PhD ‘04.

Research so far indicates that CIRI outperformed standard prognostic predictions in patients with breast cancer and two blood cancers. CIRI may also improve patients’ confidence in managing their diseases. Should they schedule a vacation for next year, or focus on putting their affairs in order? “We are trying to come up with a better way to predict at any point during a patient’s course of treatment what their outcome is likely to be,” says Alizadeh.

ANY QUESTIONS?
Women in science ask fewer, even when they outnumber men.

AS AN UNDERGRAD at UC Davis, at the end of the first day of her first research conference, Natalie Telis realized she had been the only woman there who had asked a question. The math student started tracking it numerically and concluded that women were not asking their proportionate share.

As Stanford graduate students, Telis and Emily Glassberg, both PhD ’18, tallied four years’ worth of questions at genetics conferences. Among their findings, published in June in American Journal of Human Genetics: Even when two-thirds of the scientists in a field are women, they pose only 45 percent of the questions.

When Telis tweeted from one meeting that women constituted 35 percent of the attendees but had asked only 11 percent of the questions, the number of queries from women increased. “People have been saying, ‘Once the room is representative, [we’ll have] equal participation and equal opportunity and equal advancement,’” Telis says. She thinks scientists should use their methods to test those assumptions. “I hope this is only the first of many experiments in its style.”
SURVEY

‘The Commitment of Every Single Member of Our Community’

What it’s going to take to stop sexual violence.

BY SUMMER MOORE BATTE

When the American Association of Universities released the results of its 2019 Campus Climate Survey on Sexual Assault and Misconduct on October 15, reactions ranged from appalled to unsurprised—sometimes in the same person. Stanford was among 33 universities whose students took the survey, which assessed the prevalence of sexual assault and sexual harassment. The upshot:

While individual measures for Stanford were sometimes higher or lower than the AAU average, the report as a whole makes it clear that sexual violence and harassment are epidemic at universities across the nation. Moreover, certain students—women and those who are LGBTQ, multiracial or disabled—are disproportionately likely to experience nonconsensual sexual contact at Stanford.

Officials say the survey is an important step in deepening Stanford’s commitment to measuring, educating about, and eradicating sexual assault and harassment. “I think the initial findings are a call to reexamine where we are and how far we need to go,” says Lauren Schoenthaler, senior associate vice provost for institutional equity and access.

Students asked to participate in the AAU survey after, in 2015, Stanford used an alternative survey that was conducted at fewer schools. This year, students responded in droves: 62 percent of them took the survey, nearly triple the AAU average and a proportion that provides a high level of confidence in the results. According to the report:

- Since entering Stanford, 38.5 percent of undergraduate women in their fourth year or higher have experienced nonconsensual sexual contact (actual or attempted penetration, or sexual touching) by means of physical force, inability to consent, coercion or lack of voluntary agreement.
- Since entering Stanford, 23.8 percent of undergraduate women and 21.7 percent of all transgender women, transgender men, nonbinary/genderqueer, gender questioning and gender not listed (TGQN) students have experienced nonconsensual sexual contact by physical force or inability to consent.
- Just 19 percent of TGQN students and 29 percent of undergraduate women thought campus officials were very or extremely likely to conduct a fair investigation, compared with 44 percent of the student body overall.
- About 80 percent of the incidents of nonconsensual sexual contact were committed by fellow students.
- About half of all nonconsensual sexual contact occurred in Stanford residence halls or dorms.
- Nearly 50 percent of women and 40 percent of men who experienced nonconsensual sexual contact reported adverse academic consequences as a result.
- More than 20 percent of all students have experienced sexual harassment. For female grad students and for TGQN students, the harasser was a faculty member or instructor about one-fifth of the time.

When the results were released, provost Persis Drell wrote a letter to the campus community.
“Incidents of sexual violence and harassment have considerable and long-lasting effects on individuals who have experienced them,” she said. “One incident is too many.” Drell went on to acknowledge that this is a public health problem that requires solutions from many angles. “Despite many efforts at Stanford over the years,” she said, “it is evident that much more needs to be done.”

Schoenthaler concurs: “There’s no magic answer. It’s having research teams study this. It’s reviewing how we respond; it’s asking our residential education team to work with students around scenario-based activities; it’s giving our students more tools to stand up and interrupt concerning behavior. It’s all of those things,” she says.

“I’m hoping Stanford moves away from ‘I’m so surprised’ to making concrete changes,” says Meghan Warner, a graduate student in sociology who served on a university committee that made survey recommendations to the AAU. “There are clearly flaws in Stanford’s institutional responses, and I hope they realize the survey shows that and that they make changes at the university level.”

Stanford plans to commission an external review by national experts of its current prevention and education programs to see how they can be strengthened. A transgender support website will be launched this winter. Stanford Medicine’s Gender-Based Violence Prevention Collaboration will study the efficacy of the university’s prevention programs and examine how Stanford approaches interventions—education directed at individual students who have come close to violating a policy—to ensure the most positive outcome. And Schoenthaler says it will be key to share best practices among universities. “Some of us are probably doing things well in one area and not in other areas. We need to actually lean into each other and collaboratively work together.”

Student input will be crucial. “The students themselves are saying, ‘Hey, we want this [topic] to be more present in our dialogue with the university,’” says Schoenthaler. “And that’s great.”

Change, however, will require sustained effort. Drell closed her letter to the community by committing the university to drive that effort, but added that “real and lasting solutions will not come about unless we have the commitment of every single member of our community to participate in the culture change that is needed to end sexual violence on our campus and on college campuses nationwide.”

Summer Moore Batte, ’99, is the editor of stanfordmag.org. Email her at summerm@stanford.edu.

### Sexual Assault

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<td>Students with disabilities</td>
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### Sexual Harassment

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To view the provost’s letter, survey data and Stanford resources on sexual assault, visit https://alu.ms/surveyreport.
Anatomy of a New Hospital

Seismically sound and state of the art.

BY KATHY ZONANA

1994, a Pretty Big One—the 6.7-magnitude Northridge earthquake—caused major structural damage to several older hospitals in Southern California. Within months, the state amended its seismic safety codes for hospitals, setting deadlines for bringing aging buildings into compliance. Stanford Hospital’s original 1959 building—a major portion of the care facility—was not going to pass muster.

It was an opportunity to make some lemonade. Yes, certain things had become de rigueur in modern hospitals—like private patient rooms with sleeping space for family members—but hospital administrators asked themselves what else they could do. The answers ranged from creating flexible surgical suites that can adapt to future medical innovations to putting research into practice on how nature and art can enhance healing. After six years of construction, the new 824,000-square-foot building opened in November.

Each patient room in the cantilevered pods that comprise the fourth through seventh floors has a large window that allows in views from the Foothills to the Bay—and plenty of natural light, which can help regulate circadian rhythms, reduce pain and decrease the length of hospital stays. Five gardens include walking paths, an orchard, medicinal plants (for ornamental purposes only) and a dog park.

2. Caregivers count.
The hospital’s designers aimed to create a sense of well-being and calm not just for patients but also for those who take care of them. A caregiver center—the first hospital-based one on the West Coast—provides resources and support for families and loved ones. It’s housed on the third floor, which is focused on wellness and includes a health library, meditation room, chapel, hospital staff retreat and piano.

3. Elbow room for surgeons—and students.
Each of the 20 new operating rooms is approximately 750 square feet, up from 550 in the old hospital. Whenever possible, equipment hangs from the ceiling so it doesn’t block the views of medical trainees. And a nearby MRI machine allows patients to be scanned mid-surgery so that doctors can determine whether additional intervention is necessary before closing up.
7. Prepared for anything.
Critical patients who arrive via Life Flight helicopter will be transported straight to the new, larger emergency department by dedicated elevator. The parking garage adjacent to the trauma center can offer drive-through treatment during flu season—so patients can keep germs to themselves—or be converted into a massive triage center in a regional emergency, such as an earthquake. And speaking of quakes, the new hospital was built to withstand an 8.0.

6. The food-ordering system is very Silicon Valley.
Not only do patients make their food selections on a touch screen, but the software already knows their health needs and serves up the menu accordingly. And whenever a care provider enters, the TV on the wall displays his or her name and role, providing an answer to that age-old hospital-patient question: Who is in my room and why?

4. Art Rx.
Among the hospital’s 400 works of original art are Buckyball, a trio of nested light-up geodesic domes at the main entrance, and Liquid Light, which evokes a reflecting pool without the pathogen-breeding risks of water. Two undergraduates, Noah DeWald, ’21, and Savannah Mohacsi, ’20, helped paint the colorful Wall Drawing #911 following a set of instructions by the late Sol LeWitt.

5. 19th century, meet 21st.
Some things don’t need to be modernized: The pneumatic tubes that whisk blood samples to the lab—stat—have been extended into the new building. Meanwhile, a phalanx of robots ferry linens and supplies through the basement.

MOSBILLO
‘Tell Us About a Relationship That Has Lasted Since Stanford’

At Reunion Homecoming, we asked alumni about the ties that can’t be broken.

Sonya Davison Lamb, ’59

“In our class, we were two sets of Dollies, two different years. [When] we were in our late 30s, one of them contracted breast cancer, and she said, ‘I need support.’ And so all the Dollies got together every two weeks or every month for the next two years. We gave her that support, talking about everything, what it was like, what kind of funeral—everything. It really brought us close. And that remained, and grew deeper, over 60 years.” From left: Connie Turkington, ’59, Margi Mix Gould, ’59, MA ’60, Lamb, Joan “Joni” Balling Rehnborg, ’59, MA ’60, Deanna Pollock Tarr, ’59, Maureen O’Brien Sullivan, ’59.

Rene Robles, ’94, MS ’96, and Veronica de la Cruz, ’94

“We met freshman year in Casa Zapata. We were both from the LA area, so the first thing you do is meet the people from your area because those are the people you’re going to be driving home with. We kind of grew up together. He’s a techie, I’m a fuzzie. We had a good balance. Our most memorable moments at Stanford revolve around Casa Zapata, El Centro Chicano. They helped us be successful here.”

Holly Sawyer, ’59

“We were together as roommates our sophomore year, and we’ve been in touch ever since. Town & Country Village was new at the time, and we used to sneak out of the dorm in our pajamas, and go and have ice cream. We thought that was so devilish, so outrageous. Those are the lovely things you remember.”

Joan Hotelling Passarelli, ’84

“Teri [Thomson Randall, ’84, MS ’85, right] was my ‘best woman’ in my wedding to Ben, ’81, the same summer we graduated. We supported each other as I stayed here in Silicon Valley and she lived in places like Chicago, Austin, Santa Fe and now Seattle, pursuing different degrees and careers. Although our paths have been very different, our friendship has always been there, a source of love and laughter through all the years.”

Beatriz Chantrill Williams, ’94

“On a visceral level, the smell of eucalyptus. Whenever, anywhere I go, I smell eucalyptus, I’m home. I’m back on campus.”
Melinda Sacks, ’74
“Since we were best friends at Stanford, my classmates Gail Block Harris [’74, JD ’77, center] and Barbara Lane [’74, right] have remained the ones I call first to report both emergencies and milestones. Who knew back when we were nude sunbathing on the roof of the women’s gym while eating pineapple or cramming all night for finals that the bonds we formed would be lifelong.”

Ramit Sethi, ’04, MA ’05
“One of the relationships that stands out to me is with one of my professors who was a researcher here, BJ Fogg [MA ’95, PhD ’97]. I worked with him for five years. He taught me how to run a meeting; he taught me about psychology; he taught me about life. Now I’ve known him for 15 years. I invited him to my wedding last year. It’s just been a blast keeping him as a mentor for all those years.”

Brian Scoles, ’09
“A whole set of relationships that have been very meaningful started when I moved to Synergy my senior year. I really found a great community there. I lived with a lot of those people in the years after leaving Stanford, and we created other communities in Palo Alto and in the East Bay. . . . A lot of energetic and open-hearted people that have just been a joy to spend time with.”

Hemanth Parasuram, ’99
“We were all in Sanskriti [now Stanford South Asian Society] together. We had a great time. We threw cool parties [and] had a cultural event every year called Mela. There were probably 150 participants—it was a big show. It was fun.” From left: Akash Deven Garg, ’00, MS ’00, Anoop Kumar Sinha, ’96, Parasuram.

Michelle Teo, ’14, MS ’14
“For me, it would be the women’s rugby team that I was on for four years. That relationship is still meaningful for me, and I plan to meet some of them while I’m here.”

What Stanford relationship is still going strong for you? Email us at dialogue@alumni.stanford.edu.
REVOR MARTIN, PHD ’17, hated biology in high school. He hated the emphasis on rote memorization—akin to stamp collecting, as far as he was concerned. Physics was his passion. “I liked the idea,” he says, “that we could understand the complexity of nature and things as large as stars or as small as chemical compounds by starting with fundamental principles.”

Now, little more than a decade later, biology is at the center of his work. He is CEO and co-founder of a San Francisco-based biotech start-up that, if it’s successful, could revolutionize medical diagnostics. Founded in 2017, Mammoth Biosciences has raised $24 million to bring to market a technology that uses CRISPR—the bacterial immune system that has made headlines since 2013, when it was repurposed for genome editing—to detect genes of interest in an easily portable format. Martin’s goal is, in Silicon Valley parlance, to “democratize disease detection,” replacing costly lab tests with affordable over-the-counter kits that people can use at home to screen for infections and diseases.

Martin’s conversion to biology occurred when he was an undergraduate at Princeton, after he enrolled in the integrated sciences program. Created by David Botstein, the former chair of Stanford’s genetics department, the program trains students in multiple fields to solve problems with an interdisciplinary approach. “I was very interested in the idea that you can take advances in one field,” Martin recalls, “and apply them to another to advance our understanding of the world.”

Seen through this lens, biology wasn’t boring at all. “Biology has all of these incredibly complex processes,” he says, “essentially like nanomachines that have to perform in certain ways to give rise to life as we know it.” By the time he finished his bachelor’s, he viewed biology “as the most complex system we can hope to understand.”

At Stanford, Martin earned his PhD in computational biology, an approach that creates algorithms from biological data sets to elucidate living systems and that was—when he learned it more than 12 years ago—“a novel concept,” he says. But while using this strategy to understand the evolution of gene expression, he was also looking for ways to take tools from one discipline and apply them to another. “I had just completely fallen in love with the concept of merging different fields.”

An area that struck Martin as ripe for innovation was diagnostics. By his estimation, advances in the field were incremental. As he looked for biological systems with diagnostic applications, he enrolled in Cardinal Ventures, a start-up accelerator for Stanford students. In 2016, he ran across the tool he’d been looking for while reading a paper in Nature from the UC Berkeley lab of chemistry and molecular biology professor Jennifer Doudna, who was famous for co-leading the teams that elaborated a concrete framework for how CRISPR could be programmed for gene editing. Her lab’s
new paper described a version of the CRISPR-Cas system that had been engineered to report on the presence of targeted genes. The result was precisely the sort of innovation that Martin had been seeking.

The story of CRISPR, insofar as humans have known of it, began with the mystery behind its unwieldy name: clustered regularly interspaced short palindromic repeats. First noticed in 1993, the mystery was a strange DNA sequence made of small clusters of genetic information that ran along the genome as evenly as the stripes on a candy cane. Separated by spacers, each snippet of code was palindromic, meaning that it could be read forward or backward, like the word “deified” or the phrase “never odd or even.”

Scientists found similar repeats in many types of bacteria but couldn’t tie them to a function that would explain such a deliberately spaced sequence. Eventually, they matched the palindromic snippets with the DNA of bacteriophages: viruses that “eat” bacteria—or, more accurately, that inject their DNA into them and use the bacteria’s cellular machinery to replicate.

Scientists eventually realized that the viral DNA catalogued inside bacteria was part of their immune system. They confirmed this when they found Cas, which stands for CRISPR-associated protein—a submicroscopic bacterial protein that carries transcripts of the viral snippets to identify attacking viruses. Like a host of lawmen carrying “wanted” posters as they search the faces in a crowd, the Cas proteins compare the DNA snippet they hold with every piece of genetic material they encounter. When a match is made, the Cas protein cuts up the incoming viral DNA, preventing it from taking over the cell.

Once understood, the CRISPR system was applied to gene editing, since the Cas protein can be harnessed to target specific DNA sequences and remove them, allowing new sequences to be inserted in their place. But whereas CRISPR has spawned a new industry in gene editing, what caught Martin’s eye was the modification Doudna’s lab had made to Cas. Two doctoral students, Lucas Harrington and Janice Chen, had engineered the proteins to contain reporter molecules that fluoresce green under ultraviolet light. Now, when Cas found its target, its molecular “scissors” cut not only the DNA but also the attached reporter molecules, which then fluoresced. The resulting CRISPR system could be used to rapidly determine whether certain DNA existed in a biological sample. Tests could target pathogens or genetic disorders. If the DNA in question was present, the sample glowed green under ultraviolet light. Martin immediately saw the new CRISPR system’s utility for diagnostics. He calls it “a programmable search engine for life.”

Martin contacted Doudna’s lab. “I think I was a little too persistent,” he recalls. “They told me, ‘Stop coming by our office.’” Eventually, he obtained an exclusive license for the new diagnostic technology, and Harrington and Chen, who were soon to graduate, reached out to him about working together. Along with Doudna, they became co-founders of Mammoth Biosciences. In 2018, they set up a lab in San Francisco’s Dogpatch neighborhood with five employees but have since expanded to 20 and moved to the Verily Life Sciences Campus in South San Francisco. In mid-2019, Mammoth was granted a patent for its use of CRISPR, that, in Martin’s words, “validates the work we’re doing now as leaders of the CRISPR diagnostic space.”

Martin envisions a range of applications for Mammoth’s CRISPR system beyond the lab—particularly over-the-counter products, so that someone could drop by the pharmacy to buy a rapid and inexpensive test for strep, influenza or any number of other infections, such as malaria, tuberculosis, dengue, Zika, HPV or HIV. People could even screen themselves for certain cancers several times each year, buying the tests for less than the average copay to visit their primary care physician.

But democratizing disease detection goes beyond consumer products. “Similar to how Apple’s iOS created a democratized platform for developers,” Martin says, “Mammoth’s long-term vision is to provide a CRISPR-based...
platform on which Mammoth and partners can build a large variety of tests, both within health care and across industries such as agriculture, oil and gas, and forensics.” For instance, any individual or organization wanting to determine whether a sample contains specific genetic material could have a diagnostic kit made for the sequence in question. While the obvious application is testing for infections or the expression of harmful genes, the same system could be used to evaluate the health of crops and the bacterial content of soil, assess whether microbes are corroding the insides of oil pipelines, and determine how long a body found at a crime scene has been dead.

Since Mammoth launched, its technology has been written about in numerous publications, among them Wired, TechCrunch, the New York Times and the Wall Street Journal. Joel Palefsky, a professor of medicine and laboratory medicine at UCSF and an infectious disease specialist who studies HPV infection, has taken a particular interest. “HPV is extremely important on a global basis in terms of secondary prevention of cervical cancer,” he says. “Mammoth’s technology has the potential to provide diagnostics quite inexpensively and easily for locations where the cervical cancer burden is the highest and where they need that kind of technology the most. The spectrum of HPV types does vary from place to place, and one of the really nice things about the technique is its flexibility. You can design a test that will pick up something quite specific and different from some of the other versions of the same organisms.”

As for the company’s name, Martin says that “Mammoth” stood out for a couple of reasons. “There’s the idea of the elephant in the room, but it's even bigger—CRISPR coming into the diagnostics field initially, but more generally CRISPR coming into every field. You can’t ignore it.” He hesitates a moment and then adds, “It’s also just a really cute logo.”

Deni Ellis Béchard is a senior writer at Stanford. Email him at dbechard@stanford.edu.

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35
Melbourne, Australia 1908

Master Stanford, there are two men here who wish to speak with you. A Mr. Smartsend them in.

Of course, sir.

I am Mr. Christie and this is Mr. Smart, of the Customs Department.

Apports.

From the French.

...yes, well, the bulk of which it appears has been imported from...

Indeed.

From across unimaginable chasms of distance and time.

Ahem...

Our records indicate that none of these "wonders" has been assessed for import duty.

Import duty?!

Nonsense!

Tell me, gentlemen, where in your books does it list the tax for goods "imported" from the beyond?

Come. See for yourselves.

We're here about your "collection," Mr. Stanford. Our office has recently come into possession of a catalog of artifacts—well, from all over the world.

Your collection represents a sizable sum of taxes owed to the commonwealth.

Everything you see before you has come to me directly from the spirit realm. Each of these a wonder, made manifest through my medium.
Melbourne, Australia 1908

MELBOURNE, AUSTRALIA 1908

MASTER STANFORD, THERE ARE TWO MEN HERE WHO WISH TO SPEAK WITH YOU. A MR. SMART—

SEND THEM IN.

OF COURSE, SIR.

I AM MR. CHRISTIE AND THIS IS MR. SMART, OF THE CUSTOMS DEPARTMENT.

WE'RE HERE ABOUT YOUR “COLLECTION,” MR. STANFORD.

OUR OFFICE HAS RECENTLY COME INTO POSSESSION OF A CATALOG OF ARTIFACTS—

APPORTS.

FROM THE FRENCH.

COME. SEE FOR YOURSELVES.

...YES, WELL, THE BULK OF WHICH IT APPEARS HAS BEEN IMPORTED FROM...

WELL, FROM ALL OVER THE WORLD.

INDEED. FROM ACROSS UNIMAGINABLE CHASMS OF DISTANCE AND TIME.

EACH OF THESE A WONDER, MADE MANIFEST THROUGH MY MEDIUM.

OUR RECORDS INDICATE THAT NONE OF THESE “WONDERS” HAS BEEN ASSESSED FOR IMPORT DUTY.

YOUR COLLECTION REPRESENTS A SIZABLE SUM OF TAXES OWED TO THE COMMONWEALTH.

IMPORT DUTY?! NONSENSE!

EVERYTHING YOU SEE BEFORE YOU HAS COME TO ME DIRECTLY FROM THE SPIRIT REALM.

TELL ME, GENTLEMEN, WHERE IN YOUR BOOKS DOES IT LIST THE TAX FOR GOODS “IMPORTED” FROM THE BEYOND?
STANFORD UNIVERSITY, 1912

THE PRESIDENT WILL SEE YOU NOW.

HAVE A SEAT, JOHN. I SUPPOSE I OUGHT TO CALL YOU "DR. COOVER" NOW?

INDEED, DR. JORDAN. I'M STILL GETTING USED TO THE SOUND OF IT.

JOHN EDGAR COOVER WAS ON THE CUSP OF 40 AND WAS A FORMER HIGH SCHOOL PRINCIPAL WHO HAD JUST EARNED STANFORD UNIVERSITY'S INAUGURAL DOCTORATE IN PSYCHOLOGY. HE WAS RESERVED, Meticulous AND, UNTIL THIS MOMENT, PRIMARILY CONCERNED WITH THE PSYCHOLOGY OF SELF-DISCIPLINE.

A CURIOUS PROPOSITION HAS COME ACROSS MY DESK.

AND PROFESSOR ANGELL THINKS—AND WE TEND TO AGREE ON MOST THINGS—THAT YOU ARE THE RIGHT MAN FOR THE JOB.

IN YOUR RESEARCH, HAVE YOU EVER ENCOUNTERED PHENOMENA OF THE PSYCHICAL SORT?

PSYCHICAL?

NONSENSE, IF YOU ASK ME.

BUT NONSENSE THAT WE CAN NO LONGER AFFORD TO IGNORE.

A YOUNGER BROTHER TO THE LATE LELAND, MR. THOMAS WELTON STANFORD—

A WEALTHY MAN IN HIS OWN RIGHT AND TRUSTEE TO THE UNIVERSITY—

HAS BEEN NUDGING US FOR A WHILE NOW TO EMBRACE HIS ESOTERIC INTERESTS.

HE'S OFFERING £10,000 TO ENDOW A NEW FELLOWSHIP WITH THE EXPRESS PURPOSE OF CONDUCTING PSYCHICAL RESEARCH.

AND WE WANT YOU, DR. COOVER, TO HEAD UP THE RESEARCH.

FOR A MAN AT THE OUTSET OF HIS CAREER IN ACADEMIA, THIS WAS A RARE OPPORTUNITY, BUT FOR THE UNIVERSITY IT PRESENTED A PROBLEM:

PSYCHICAL RESEARCH EXISTED ON THE FRONTS OF THE RELATIVELY NEW DISCIPLINE OF PSYCHOLOGY, HARDLY THE KIND OF CUTTING-EDGE SCIENCE THE UNIVERSITY WAS HOPING TO MAKE ITS STOCK IN TRADE.

BUT STANFORD UNIVERSITY WAS A YOUNG INSTITUTION, AND FUNDING WAS A CONSTANT STRUGGLE. THE PROMISE OF AN ENDOWMENT WAS HARD TO PASS UP.
Thomas Welton Stanford was born in 1832, in Albany, N.Y., the youngest of seven boys.

He dropped out of college to join his brothers in the California gold rush, where they opened hardware stores in the mining camps.

By his 27th birthday, he had become rich and restless.

In 1859, Welton—as he would begin signing his letters—sailed for South Australia with his brother DeWitt, where he once again capitalized on the needs of hopeful miners.

Eventually, he secured a monopoly on Singer sewing machines, in part by buying up and smashing the stock of his competitors.

These early years in Australia were also marked by tragedy: first, the death of his brother DeWitt, and later of Welton’s wife, Minnie, during childbirth.

Somewhere between the accumulation of his fortune and the loss of almost everyone he’d ever loved, Thomas Welton Stanford found his true calling.

By the turn of the 19th century, the Melbourne elite would join him every week in his office to listen to the voices of the dead.
Some of humankind’s oldest and most enduring stories tell of our desire to breach the pale of death, to speak to the spirits on the other side. Most of these stories are ancient legends.

But in 1848, two girls in upstate New York made news headlines when they claimed that a ghost spoke to them through the sound of knocks on a table. Curious pilgrims were flummoxed by Kate and Maggie Fox and their “spirit rapping.”

The Fox sisters toured the country, stirring in their wake a national obsession with the spirit world. The Fox sisters toured the country, stirring in their wake a national obsession with the spirit world. The Fox sisters toured the country, stirring in their wake a national obsession with the spirit world.

Spiritualism, as this new obsession came to be known, sat at the crossroads of religion and science. It presupposed the existence of an afterlife, yet its devotees took pains to “prove” through tests and demonstrations that spiritual phenomena were authentic.

By the late 1880s, psychical research societies had formed in Europe and the Americas: loose-knit networks of skeptics and true believers, scientists, poets and philosophers. For decades, investigating spiritualism was the business of zealous amateurs.

But that changed in 1912, when John Edgar Coover set to work. He transformed a corner of the physics building into a special laboratory. Under the direction of Lillien Martin, a professor of psychology, it was stocked with state-of-the-art equipment, as well as the books and appurtenances that Welton Stanford had shipped from Melbourne.

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But in 1848, two girls in upstate New York made news headlines when they claimed that a ghost spoke to them through the sound of knocks on a table.
Sometime around 1900, Welton Stanford heard rumors of Charles Bailey, the illiterate boot-factory worker prone to fits, through whom a dozen long-dead voices sang of forgotten history, by whose hand a host of Hindu shamans plucked the harmonic chords of ether that bind us all.

Good evening, friends. Good evening, Dr. Whitcomb. I desire to say something to you concerning more ancient places, not generally known to historians.

When Stanford first met Bailey, he saw with his own keen, canny eyes, that the rumors were true. Stanford kept Bailey on a retainer, though the tycoon’s relationship to his pet medium was complicated. He once confided to David Starr Jordan:

Bailey is a liar, a shameless grafter whose word is valueless.

And yet, in Stanford’s mind, the personal failings of his medium were no reason to discount his psychic abilities. He is simply an unconscious instrument to be played on.

For when Bailey was overtaken by his "controls"—the spirits of the dead, like that of one Dr. Whitcomb, a deceased physician—he spoke so convincingly and with such eloquence that Stanford felt as if he were witness to marvels.

Of course, it helped that the spirits constantly reassured Stanford that his "investigations" were a worthy pursuit.

Mr. Stanford, the knowledge that you are fighting for the cause of truth should make you more courageous even than Alexander.

But realize, too, that there are more for you than there are against you.

You fight against many difficulties, bearing the scorn of men, I desire to say something to you concerning more ancient places, not generally known to historians.
Coover had read transcripts of Stanford’s séances. And he had read reports from France and Italy of aborted séances, of Bailey’s parlor tricks exposed. The mania of Spiritualism was, as Coover put it, “adequately explained by illusion and hallucination.”

In other words, it was a purely psychological phenomenon.

But even if Bailey was a charlatan, Coover still had a job to do.

He embarked, with characteristic meticulousness, upon a series of experiments to test thought transference, or telepathy, a cornerstone of Spiritualism.

Coover ran more than 10,000 tests.

He determined that it all came down to probability: A second facet of his work was to investigate some of the reasons that séance participants could be so credulous. Here, he focused on how we hear language.

Coover found, after some 40,000 trials with 107 subjects, that he could manipulate a listener’s understanding of a garbled message by giving her different transcriptions of what she had heard.

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The ear cannot be trusted to report correctly names or phrases.

When the latter are spoken under such conditions as are deemed by the recipient satisfactory for communication yet which permit some degree of indistinctness, such as is usual when “trumpet” or “independent” voices speak in a séance room.

Whether ’tis nobler in the mind

Wever kiz modler im vu nind.

To what extent does perception of words depend upon the sense of hearing?

To what extent upon what the mind supplies?

“Whether in tears or in sunshine”
Very curious.

A fetish belonging to a witch doctor from the Ubangi district of the Belgian Congo.

Welton Stanford didn’t need to trust his ears. He could hold the truth in his hand.

A loaf of bread just now removed from the ovens in Calcutta.

The snow-drenched hat of a Tibetan executioner.

An ancient Aztec scroll.

An object would drop to the table. And by some arcane manipulation of electrical vibrations,

Then a spirit, speaking through Bailey, would explain to his rapt audience the exotic provenance of this most rare "apport."

The Hindus tell me that they’ve found a special gift for you tonight.

Fascinating. Tell us more about it, Dr. Whitcomb.

"I quite understand any disinclination you, or any other busy man, may have to devote valuable time to psychic subjects..."

...time so spent is worse than lost, for it prejudices the investigator against further effort in what he believes to be a will-o’-the-wisp illusion.

But with a medium like Mr. Bailey, preliminary investigation is not a task but an exciting pleasure.

Over the dozen years that Bailey worked for Stanford, his grift was remarkably consistent:

A living songbird, asleep in its nest.

Occasionally, crates of these musty artifacts would arrive at President Jordan’s office at Stanford University.

At some point during a séance, the lights would dim.

Whoosh. Thud.

STANFORD 43
In 1914, Bailey finally fell out of favor with his patron. Over the next few years, Welton Stanford pressured the university trustees to rush publication of Coover's research.

Coover kept his position as Fellow of Psychical Research, but he was done with spiritualism.

One important by-product of his work is easy to overlook: Coover is credited with being the first to formally describe the use of randomized control groups in psychological experiments.

He would never know what his benefactor thought of his research.

In his will, Stanford bequeathed $750,000—equivalent to almost $14 million today—to the university for the purposes of "psychical research and related phenomena." The university took from this cryptic mandate only the words that made sense.

They're now in the university's special collections.

It is not universally true that "where there is so much smoke, there must be some fire,"

for the "smoke" may be but dust stirred up by artful deceivers for artless perceivers.

He skipped town for England, where he briefly held Arthur Conan Doyle in his thrall.

For Thomas Welton Stanford died, in 1918, without having commented on Coover's work.

As for the apports, all but a few dozen were lost. They're now in the university's special collections, curious totems of an abandoned quest.

Jonathan Fetter-Vorm, '05, is a graphic novelist. His most recent book is MOONBOUND: Apollo 11 and the Dream of Spaceflight.
TIME IS THE GREATEST GIFT OF ALL
THE CARDINAL COLLECTION

The ultimate holiday gift for the Stanford family. This is the Edition 1 Swiss Made timepiece, one of only fifty made. It gives you the time and date, and it doesn’t need to be charged overnight. And it’s the rarest, highest quality watch ever made for the Cardinal – Go Stanford!

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STANFORD

IF YOU WERE RAISED in the world’s oldest modern democracy, you might take some things for granted. Like your freedom to file a lawsuit, or join a union, or travel where you like, when you like. You might be so involved in criticizing your government that you forget to be relieved that you can do so without going to jail.

Don’t get too comfortable, warns Stanford political scientist Larry Diamond, ’73, MA ’78, PhD ’80. In his new book, *Ill Winds: Saving Democracy from Russian Rage, Chinese Ambition, and American Complacency*, Diamond describes how liberty is under assault in the United States and abroad, following more than a decade in which democracies globally have weakened or failed. And he asserts that without dramatic and immediate efforts to arrest the trend, democracy as a system of government is in peril.

“Not all democracies do a good job of defending liberty, but all the political systems that protect liberty are democracies,” writes Diamond, a senior fellow at the Hoover Institution and at the Freeman Spogli Institute for International Studies, who has studied and supported the world’s democracies for 45 years as a scholar and an adviser to civic leaders, dissidents, human rights advocates and transition teams in 70 countries. “What saves citizens from the knock on the door in the dead of night, from the risk of being silenced or removed, is a constitution, a robust body of laws, an independent judiciary to enforce them, and a culture that insists on free elections, human rights, and human dignity.”

Without American moral leadership, scholars say, democracy everywhere is in danger of

FREE FALL

BY JILL PATTON

Human nature being what it is, power that is not checked will sooner or later be misused.

—Larry Diamond, *Ill Winds*
tremendous danger and fragility,” Diamond says. He recalls the 1930s, when fascism took root across the world. “It’s not that yet, but if we allow complacency to prevail in our thinking and our political postures, that’s where we could wind up.”

In the past, America has played a critical role on the global stage as a model for developing democracies, a crusader for human rights and a bulwark against the spread of authoritarian regimes. Former secretary of state Madeleine Albright once called America “the indispensable nation” for its moral leadership. But unlike ever before, scholars say, America’s commitment to democracy is flagging. At the same time, China and Russia are stepping vigorously into the void to promote an entirely different approach—one featuring strong central leaders hostile to diversity and dissent. The risk, Diamond says, is a century defined by the rise of the autocrat.

**THE WINDS OF FREEDOM**

**WHEN** did American democracy begin? Some argue it was 1776, when the colonies declared independence from England. Others say 1789, the year the new government adopted its constitution. It could have been 1865, with the abolition of slavery, or 1920, with women’s suffrage. Diamond contends it was 1965, when Congress passed the Voting Rights Act and presidential elections could plausibly be considered “free and fair.”

The American experiment set off waves of democratic expansion and contraction. Western Europe rounded out the first wave during the 1800s, before Nazi Germany and imperial Japan brought about a nadir in the 1930s. Democracy expanded again in the mid-20th century, returning to Western Europe, growing in Latin America, and taking hold in Japan and Turkey. A sustained upswing came in the mid-1970s with the democratization of Portugal, Spain and Greece, and more growth in Latin America and East Asia in the 1980s. The third boom peaked in the mid-2000s, by which time democracy had become the dominant system in every part of the world except the Middle East.

“We have experienced an absolute transformation of our world’s politics in the direction of more democratic processes over the last 50 to 75 years,” says Jeremy Weinstein, a political science professor and director of the Stanford global studies division. “And recessions always seem to follow these transformations. We’ve got to remember that people are better off and more free than they’ve ever been in human history.”

And yet, Weinstein says, Diamond is “right to raise the alarm” about democracy’s recent decline—it poses great risks to the world order.

“We have had a system of international governance since World War II that reflects the ascendance of a set of commitments to individual rights and protections rooted in the U.N. system, emerging over time because the United States—full of its imperfections—has been a more benevolent power internationally than most empires historically,” says Weinstein, who served as deputy to the U.S. ambassador to the United Nations from 2013 to 2015.

“A world without U.S. leadership and without an international architecture that’s rooted in things like the Universal Declaration of Human Rights is a very different universe, and not one I’m sure most people would want to live in.”

**WHY POPULISTS ARE SO POPULAR**

**EVERYWHERE** Diamond looks, momentum seems to be gathering around authoritarian populists: charismatic leaders who capitalize on discontent, sow distrust in the system and then consolidate power. Even though most people living in a democratic system claim to prefer it, many believe their governments are not working for them, which opens the door for populists to emerge.

Globalization may be partly to blame: In an increasingly interconnected world, governing has gotten trickier. “If you have a constant flow of capital, people and trade goods, it’s harder to figure out what to do in your own country,” says political science professor Anna Grzymala-Busse, who directs the Global Populisms Project at the Freeman Spogli Institute. The increasing interdependence of the world’s economies also limits the impact of any one nation’s policies. As mainstream politicians struggle to solve “national” problems that are, in actuality, intertwined with the actions and
economies of other countries, voters can start to view them as inept.

Globalization has stoked nationalism and anti-immigrant sentiment among citizens who fear not only the economic but also the cultural changes that can accompany such shifts. There again, Grzymala-Busse says, populists have stepped in, defining “the people” of a country narrowly and subjugating minority interests. “Populist movements have this very corrosive impact on democracy,” she says.

Former Venezuelan president Hugo Chávez was a case in point. He first campaigned on the idea of bringing power to the people and, in his early years, enabled by $100-per-barrel oil prices that filled the Venezuelan treasury, he introduced reforms that improved living conditions for much of the country’s populace. Those programs led to political successes that allowed him to extend his power. During his 14 years as president, from 1999 to 2013, Chavez rewrote the constitution, ended presidential term limits, fired the judiciary, and reclassified as an authoritarian regime, a condition that remains in effect under President Nicolás Maduro. Meanwhile, populist movements have advanced in Turkey, Bolivia, Hungary and Poland.

“When you look at all this stuff, on balance,” Diamond says, “it’s not a period of good, uplifting, edifying news about democracy in the world.”

AMERICAN DEMOCRACY: DEATH BY 1,000 CUTS?

IN THE United States, political rights and civil liberties have declined gradually over the past eight years, according to Freedom House, a U.S.-based watchdog organization that monitors the practice of democracy globally.

“The great challenges facing U.S. democracy did not commence with the inauguration of President Donald Trump,” the organization’s president, Mike Abramowitz, observes in the 2019 Freedom in the World report.

“Intensifying political polarization, declining economic mobility, the outside influence of special interests, and the diminished influence of fact-based reporting in favor of bellicose partisan media were all problems afflicting the health of American democracy well before 2017.” He notes that the George W. Bush administration infringed on individual rights with its surveillance programs that collected people’s personal data in bulk, and he characterized the Obama administration’s crackdown on press leaks as “overzealous.”

But, Abramowitz says, “there remains little question that President Trump exerts an influence on American politics that is straining our core values and testing the stability of our constitutional system. No president in living memory has shown less respect for its tenets, norms and principles.” Albright has called Trump “the first anti-democratic president in modern U.S. history.”

Some 86 percent of American voters think democracy is a good or very good system, and 78 percent say democracy is always “preferable to any other kind of government,” according to a 2017 survey by the nonpartisan Democracy Fund Voter Study Group. But according to a 2019 poll co-led by Diamond, only 30 percent believe American democracy works well. And when Democracy Fund researchers probed further, they found that 24 percent of Americans feel positively about the idea of “a strong leader who does not have to bother with Congress and elections.” Eighteen percent support the idea of military rule.

Those attitudes pair badly with America’s political polarization and a hollowing out of the civic sector. “Basically, a lot of the former associations or civic networks that maintained ties between citizens and elected officials have eroded,” says Didi Kuo, associate director for research at Stanford’s Center on Democracy, Development, and the Rule of Law. She points to shrinking participation in volunteer organizations and churches, the disintegration of labor unions, the decline of local and state media, and the weakening of local and state party organizations.

“The way that affects people’s perceptions is that [they believe] there’s not much they can do about political outcomes around them,” Kuo says. “The result can be paralysis, or at least complacency.”

What if the slide away from democracy continues? What if America weren’t a democracy?

The World Justice Project, a non-governmental organization that assesses the rule of law in 126 countries, is technically agnostic about the political system a country uses. Instead, it studies whether a government is accountable, just and transparent, and whether it offers its citizens effective, accessible dispute resolution. William Neukom, LLB ’67, WJP’s founder and CEO, observes that after having collected 10 years of data, researchers can say that liberal constitutional democracies are the most likely to have a robust rule of law.

“Liberal democracy is great—and it’s complicated,” Neukom says. When the organization’s researchers dive into their country-by-country analyses, each of which includes a thousand extended in-home interviews, they’re better able to understand why Denmark has the best rule of law in the world, Venezuela is at the bottom, and the United States ranks 20th. In the interviews, citizens describe experiences they’ve had with police officers, government officials and the courts, and the impact of those experiences on their lives. WJP’s 2019 Rule of Law Index shows middling to low scores for the United States on legislative corruption, labor rights, regulatory delays and discrimination (broadly speaking and in the courts).

What worries many scholars is that America’s commitment to its ideals seems to be weakening just as the democratic order is being threatened by an assertive and influential global superpower—China.

“We’re no longer in this unipolar moment where the U.S. is ascendant, its norms and values are being broadcast, and it has this attractive, influential role,” Weinstein says. “There’s competition for that mantle. That’s really new.”

The turning point was China’s 2013 presidential election.

“Xi Jinping’s presidency represents a break with previous Chinese leaders toward the overpromotion of the China model of authoritarian state capitalism, with a heavy emphasis on authoritarian as a better model,” Diamond says. It also signals a break from the peaceful transfer of power—the Chinese legislature amended its constitution last year to eliminate term limits for the presidency.

China’s menace comes in part from its economic strength. Authoritarian leaders in, say, Uganda or Cambodia, can point to the success of China’s model for economic development as an excuse to sacrifice civil
What worries many scholars is that America’s commitment to its ideals seems to be weakening just as the democratic order is being threatened by an assertive and influential global superpower—China.

liberties in their quest to build a strong state. “Of course, there’s no evidence that that kind of repression”—of Turkic Muslims in Xinjiang or protesters in Hong Kong—“was necessary for China’s economic growth,” Diamond says. “There’s lots of evidence that the democracies of Africa are growing more rapidly than the dictatorships of Africa, but none of that matters. The leaders are looking for something to legitimize their concentration of power and their crackdown on opposition and dissent.”

Russian mischief is also chipping away at the strength of Western democracies. The German Marshall Fund, a U.S. think tank, has tracked 420 instances of Russian interference—through disinformation campaigns, cyberattacks, political subversion, economic coercion and malign finance (such as money laundering)—in 43 countries since 2000. More than 50 of those campaigns targeted the United States, among them the effort to undermine the 2016 U.S. presidential election. Meanwhile, Diamond notes, Russian trolls and bots were tweeting pro-Brexit messages from thousands of fake accounts.

But Diamond’s gaze is primarily trained on China. “There is no problem in international affairs—other than climate change, and this is not irrelevant to climate change—that I worry about more than the U.S.-China relationship,” he says. He recommends a U.S. posture of “constructive vigilance” that includes cooperation on climate change and humanitarian crises, respect for the Chinese people, assertive defense against intellectual property theft and “careful restraint so we don’t stumble into a military conflict.”

One way to improve democracy anywhere would be to engage citizens in deliberating with one another more extensively before elections. James Fishkin, a professor of communication and director of the Center for Deliberative Democracy, has used a process called deliberative polling 108 times in 28 countries since 1994 as a way to help governments find democratic solutions to controversial issues. The method convenes a representative, randomly selected group of constituents who prepare discussions using the same set of facts reviewed by a range of policy experts. In the end, a confidential questionnaire gathers their opinions.

“One now, democracy is under threat because it’s not plausibly connected to the will of the people,” Fishkin says. Deliberative polling seeks to “create good conditions for the people to decide what they really want in an evidence-based and reason-based way that is weighing competing alternatives.” Key to the method is breaking out into small “deliberating microcosms,” he adds. “Once people feel their voice matters, they’ll do all the hard work to think through the complexities of the issues.”

Most recently, Fishkin and Diamond paired up on America in One Room, a deliberative poll hosted in Dallas in September. The event gathered 526 registered U.S. voters to consider together five topics at issue in the 2020 presidential election: health care, immigration, the environment, the economy and foreign policy. After spending four days together in small-group discussions, participants didn’t report changing their minds all that much, but they said they had a better understanding of why others felt the way they did.

And yet, before-and-after surveys showed the conversations had a moderating influence on voters on certain issues. “Democratic support receded for a $15 federal minimum wage and for ‘Medicare for all,’” the New York Times reported in its coverage of the event. “Republican support grew for rejoining the Paris climate agreement and for protecting from deportation immigrants brought to the United States as children.” Plus the gathering appeared to improve enthusiasm for democracy—at the end of the four days, the proportion of participants who said they believe American democracy works well doubled, to 60 percent.

Another way to improve the character of America’s democracy, says Diamond, is ranked-choice voting, an approach being explored by several states that encourages moderation, coalition building and civility in politics. Instead of choosing one candidate, voters rank contenders in order of preference. If no one wins a majority, the candidate with the fewest first-place votes is cut, and those votes are redistributed among the remaining contenders. Eventually, a majority winner emerges. The process creates incentives for politicians to appeal to broader constituencies, lessens the power of extremists, and opens up the field for third-party candidates. “I think if you change the incentive structure,” Diamond says, “you will gradually change the politics.”

His other recommendations run the gamut, from rooting out gerrymandering and expanding voting rights to retiring the Electoral College. He also suggests reforming campaign finance and lobbying, and fixing
congressional rules that gum up representatives’ ability to work together.

A CLOUDY FUTURE
AND AN OPPORTUNITY

IAN MORRIS, a Stanford classics professor, a historian and an archaeologist, says one of the most basic assumptions underlying how people organize themselves is whether we believe that people are all more or less the same or fundamentally different. The first assumption favors democracy; the second, hierarchy. The notion that some people are inherently superior, more godlike and, thus, rightly more powerful allowed monarchs, despots and craven emperors to subjugate people for most of the past 10,000 years, save for a limited democratic experiment in Greece 2,500 years ago and modern democracies of the past 200 years.

In other words, as systems of government go, democracy is an outlier. In fact, Morris predicts the end of democracy—perhaps in this century. He envisions its replacement by a ruling class of financially savvy, meritocratic technocrats. “Is it reasonable to think that the 19th- and 20th-century model of democracy is still going to be the most efficient and effective way of running a community 100 years from now?”

Down the line, relatively soon, Morris expects we’ll think it’s “crazy” to assume we might know better than our phones do. The machines will be the “godlike kings” we submit to. “Democracy and decision-making are going to look wildly different even within my lifetime,” Morris says.

Still, the sun hasn’t set on the era of free will. And if Diamond tilts his head at the right angle, he can imagine a silver lining among the gathering storm clouds: We have a chance to see what the world is like without U.S. leadership, and that may inspire a call to action.

“Democracies are not gifts or miracles,” he writes. “They are painstakingly built forms of government, and none of them are invincible if citizens succumb to cynicism and complacency in perilous times.”

JILL PATTON, ’03, MA ’04, is the senior editor of STANFORD. Email her at jillpatton@stanford.edu.
Nearly 50 years after William Dement established sleep science at Stanford, a new generation of researchers are using modern biomedical techniques to shine a light on the mysteries of Nod.

Nearly 50 years after William Dement established sleep science at Stanford, a new generation of researchers are using modern biomedical techniques to shine a light on the mysteries of Nod. That the NBA adjusted its schedule to allow players more rest. Or there's Mark Rosekind, '77, the first sleep expert appointed to the National Transportation Safety Board and later the 15th administrator of the National Highway Traffic Safety Administration. Back when he was a teaching assistant in Sleep and Dreams, Rosekind joined a waterbed study conducted by Dement in which Rosekind's future wife, Debra Babcock, '76, also participated. "The way Mark has told it publicly," Pelayo recalls, "that's how they met, during a waterbed research study. That was the '70s."

Having spent those decades railing against people who bragged about skimping on sleep, Dement is now being vindicated by a host of new, rapidly evolving technologies. Millions of people wear sleep trackers whose data is processed by machine learning. Millions of sequenced genomes give insights into how humans are programmed to sleep. Scientists better understand sleep's complex relationship with physical and mental health. And pop culture has been quick to respond. Clickbait features the sleep habits of famous CEOs: Elon Musk snoozes from 1 a.m. to 7 a.m.; Bill Gates is tucked in by midnight. The rested, productive brain is the new flexed biceps.

Here we look at a number of the shadowy domains on which the current generation of sleep scientists are shining their lights. Some of their studies read like the premises to sci-fi films, while others are sufficiently disturbing to keep you up at night.
THE GENES OF NIGHTMARES
Hanna Ollila, a visiting instructor in psychiatry and behavioral sciences, became interested in sleep during her high school years in Finland, when she and her friends were discussing why people sleep. Five years later, she started a PhD in sleep science. She partnered with a fellow graduate student—appropriately named Nils Sandman—to research nightmares, clinically defined as negative dreams that cause the dreamer to wake up. In a 2013 study, they found that veterans of war, especially those who saw combat, were comparatively likely to have nightmares, and that the nightmares correlated with insomnia, depression and anxiety.

Post-traumatic nightmares made sense, but Ollila became increasingly curious about idiopathic nightmares—those without a known cause. Although nightmares were rare in the population at large, previous studies had shown that if one twin had them, the other often did as well. Ollila wondered whether idiopathic nightmares had a genetic basis.

Often viewed as profoundly personal, dreams and nightmares have eluded scientific explanation for decades. “When people think about dreaming,” Ollila says, “they think about Freud. It’s not very serious science. We wanted to do a study that would give us scientific proof that nightmares are actually important and dreaming is important. Genetics is a nice way to do that because the genes don’t change during your lifetime.”

Ollila and her team conducted a genome-wide association study in which 28,596 people were given sleep questionnaires and had their genomes analyzed. The results: Two genetic variants were more common in people who reported nightmares. The first variant is located near PTPRJ, a gene correlated with sleep duration, and the second is near MYOF, which codes for a protein highly expressed in the brain and bladder.

Untangling causality in genetics is tricky, and in this case, deciphering the results is particularly challenging, since the variants are in unexpressed regions of the DNA: those that don’t code for traits but could affect the regulation or splicing of many nearby genes. So it’s not yet clear what, if anything, the two closest genes have to do with nightmares per se. Given that people are most likely to recall the dreams in which they wake up, those with the variants might not have more nightmares. They may simply wake up more often, either because PTPRJ affects sleep duration or because MYOF results in nighttime trips to the bathroom. Or the variants could have far different and possibly more complex relationships with nightmares.

THE GENES OF NIGHTMARES
Hanna Ollila, a visiting instructor in psychiatry and behavioral sciences, became interested in sleep during her high school years in Finland, when she and her friends were discussing why people sleep. Five years later, she started a PhD in sleep science. She partnered with a fellow graduate student—appropriately named Nils Sandman—to research nightmares, clinically defined as negative dreams that cause the dreamer to wake up. In a 2013 study, they found that veterans of war, especially those who saw combat, were comparatively likely to have nightmares, and that the nightmares correlated with insomnia, depression and anxiety.

Post-traumatic nightmares made sense, but Ollila became increasingly curious about idiopathic nightmares—those without a known cause. Although nightmares were rare in the population at large, previous studies had shown that if one twin had them, the other often did as well. Ollila wondered whether idiopathic nightmares had a genetic basis.

Often viewed as profoundly personal, dreams and nightmares have eluded scientific explanation for decades. “When people think about dreaming,” Ollila says, “they think about Freud. It’s not very serious science. We wanted to do a study that would give us scientific proof that nightmares are actually important and dreaming is important. Genetics is a nice way to do that because the genes don’t change during your lifetime.”

Ollila and her team conducted a genome-wide association study in which 28,596 people were given sleep questionnaires and had their genomes analyzed. The results: Two genetic variants were more common in people who reported nightmares. The first variant is located near PTPRJ, a gene correlated with sleep duration, and the second is near MYOF, which codes for a protein highly expressed in the brain and bladder.

Untangling causality in genetics is tricky, and in this case, deciphering the results is particularly challenging, since the variants are in unexpressed regions of the DNA: those that don’t code for traits but could affect the regulation or splicing of many nearby genes. So it’s not yet clear what, if anything, the two closest genes have to do with nightmares per se. Given that people are most likely to recall the dreams in which they wake up, those with the variants might not have more nightmares. They may simply wake up more often, either because PTPRJ affects sleep duration or because MYOF results in nighttime trips to the bathroom. Or the variants could have far different and possibly more complex relationships with nightmares.

SLEEP, THE NEW HEALTH BIOMARKER
While Dement’s efforts to educate people about the dangers of sleep debt have borne fruit—with industry having adjusted safety standards to allow periods of rest—new studies suggest that sleep influences health in more ways than previously imagined. A growing body of research reveals that individuals are programmed to sleep differently. Some are refreshed after a mere six hours, whereas others need nine. And a recent study in which Ollila participated found 42 genetic variants associated with daytime sleepiness. For individuals and employers, knowledge of sleep genes could avert automobile or work accidents while leading to greater happiness and productivity.

Genes associated with sleep are also involved in other biological processes and have a role in health problems. “Sleep is kind of a central anchor that connects a lot of different types of diseases,” says Nasa Sinnott-Armstrong, a PhD student in genetics who works with Ollila. Genes implicated in sleep are linked to cardiac, metabolic and autoimmune diseases as well as obesity, type 2 diabetes, schizophrenia, bipolar disorder and depression. Such health problems, Sinnott-Armstrong says, appear to evolve in tandem with sleep disruption: “I think of sleep as a really good self-reported biomarker for many important diseases.”

The broader research on sleep and health dovetails with that on nightmares, since, as assistant professor of psychiatry and behavioral sciences Rebecca Bernert has shown, frequent nightmares correlate with psychiatric disorders and suicidal behavior, even in the absence of depression. The question then, asks Ollila, is whether managing sleep according to our genetics could have mental-health benefits. “If you treat the sleep component efficiently,” she says, “it may have an impact on the psychiatric disorder.”

NOT LETTING SLEEPING DOGS LIE
In 1974, Dement brought a French poodle named Monique to Stanford. The dog had narcolepsy, a condition that affects 1 out of every 2,000 people, causing them to fall asleep repeatedly over the course of each day. Its symptoms range from collapsing during moments of excitement to hallucinating as if dreaming to plunging into REM sleep. Narcolepsy presents constant dangers, whether a person is driving, cooking, carrying a child or going for a dip in the ocean.

By 1976, Dement had established a colony of narcoleptic dogs, and in the 1980s he founded the Stanford Center for Narcolepsy. Emmanuel Mignot, a French sleep
researcher, arrived in 1986 to study the dogs, and in 1999 he discovered narcolepsy’s cause: a lack of hypocretin—a signaling molecule that controls wakefulness and is produced in part of the hypothalamus, a small area in the brain that regulates processes such as circadian rhythms, body temperature and appetite. The area that produces hypocretin contains only 70,000 of the brain's 86 billion neurons, and in narcoleptics, they have been decimated. The culprit: certain strains of the influenza virus, especially H1N1. Receptors on the virus resemble those on the neurons. White blood cells targeting the flu inadvertently destroy the neurons as well, causing lifelong narcolepsy. “It’s an autoimmune disease that’s triggered by the flu,” says Mignot.

A professor of psychiatry and behavioral sciences and director of the narcolepsy center, Mignot is now using large genetic databases to evaluate whether certain people are more vulnerable to having their hypocretin-producing neurons destroyed. He and his collaborators are also researching and testing possible treatments. “It’s very exciting,” Mignot says, “because new drugs based on this hypocretin pathway are coming now on the market.”

As for Stanford’s narcoleptic dogs, the last one died in 2014. By then, the colony had long since closed and the remaining dog—named Bear—was living with Mignot and his wife. But the next year, a dog breeder contacted Mignot and asked if he wanted a narcoleptic Chihuahua puppy. Today, when Mignot guest lectures for Sleep and Dreams, he brings Watson, the Chihuahua. “Any student anywhere in the country can learn about sleep,” Rafael Pelayo says, “but only here at Stanford can they actually hold a narcoleptic dog in their arms as they are learning about it.”

DREAM ON
As a teenager, Jonathan Berent, ‘95—another guest lecturer in Sleep and Dreams—read about lucid dreaming and, following the instructions in a book, taught himself to remain aware in his dreams and even, to some extent, to control them. At night, he could fly or explore fabulous landscapes, real or imagined. “It really does feel like a superpower,” he says.

At Stanford, Berent read the work of Stephen LaBerge, PhD ’80, who researched lucid dreaming. Berent contacted him and, with his mentorship, wrote a paper exploring lucid dreaming’s potential to shed light on the nature of consciousness. After completing a degree in philosophy and religious studies, Berent went into the tech industry; he now works at Alphabet, Google’s parent company. Independently, he continued to research lucid dreaming, and in 2015 he collaborated with Ken Paller, director of cognitive neuroscience at Northwestern, to develop a smart sleep mask that helps people choreograph their dreams. The prototype uses subtle light pulses to make sleepers aware that they are dreaming. It also gives them sound cues using targeted memory reactivation, a technique in which selected activities are paired with tones during the day. When sleepers hear the tone, they recall the associated activity: visiting a place, meeting a person or working out a practical challenge during sleep.

Better yet: The dreamer may be able to answer. During REM sleep, the brain shuts off the neurons that control virtually all muscles, paralyzing the body. Only the eyes can move. In the 1980s, LaBerge proposed that bidirectional communication during sleep was possible by lucid dreamers who learn to control their eyes; if information were transmitted to them, they could reply with eye movements. Berent envisions using a series of coded eye motions that a mask transmits to a computer for interpretation. He contemplates scenarios in which a scientist connects with dreamers. “Can you ask a specific question,” he says, giving the example of a simple arithmetic problem, “and can the person stay asleep, do the math and respond?”

For Berent, harnessing the power of the unconscious is the ultimate goal, but the mask may have more commercial uses: It can be synced with virtual reality headsets, so that the dreamer can be cued to pick up where he left off in VR, gaming from dusk till dawn. (Berent’s team also created an app, Lucid Reality, that trains people to lucid dream without the mask.)

But if pinging the subconscious for inspiration or engaging in video game firefights during REM sounds less than restful, Berent agrees. Despite the energizing effects of lucid dreaming, he feels slightly less refreshed the next morning. When he was most actively exploring lucid dreams, he says, “I did it as many times as I felt like I wanted to, and that ended up being two times a week. I needed those other nights off.”

THE SLEEP REVOLUTION
The challenge in studying sleep and dreaming has been in connecting them with the biological processes that underpin them. Until now. “The field of sleep is at the confluence of three revolutions,” says Mignot. “One is genetics and proteomics—the biological revolution. The second is the hardware revolution. And then there’s a data revolution.”

In genetics, the complex science behind polygenetic traits—those with origins in
multiple genes—requires finding correlations between millions of variants and traits. Doing so is the focus of the computational genetics lab of biology and genetics professor Jonathan Pritchard (with whom Ollila and Sinnott-Armstrong work on sleep, health and nightmares). Pritchard explains that genetic correlation with traits has historically been found by looking at similarities among family members. Now, researchers deploy computational techniques and machine learning to examine vast numbers of genomes, determining whether individuals with similar characteristics have similar genotypes. “The first genome-wide association studies were around 2006. Those were very small. The largest study then was 20,000 people,” Pritchard says. “The technology has moved really quickly. Now for a lot of phenotypes, we are getting up toward a million.”

With technological improvements and the decrease in the cost of gene sequencing from $100 million in 2001 to $1,000 today, Ollila points out, our understanding of genetic behavioral traits is rapidly growing. “Big data has revolutionized how we understand what modifies sleep at the genetic level,” she says. And some patient registries are combining genetic data with medical records, allowing researchers further insight. “UK Biobank revolutionized the study of common sleep features,” she says, referring to a genetic registry of half a million people, “as it had both a sufficient sample size and it had questionnaires of sleep traits.”

But whereas the genetics revolution has been well publicized, proteomics—the study of proteins—hasn’t received much media attention. Yet every drop of blood contains thousands of proteins, each one coded by a different gene before being modified within cells and secreted into our blood. Through proteomics, scientists can see the expression level of genes and learn how protein modifications reflect our health.

Mignot can now send blood to SomaLogic, a company based in Boulder, Colo., whose technology can measure as many as 5,500 different proteins in each 100-micro-liter sample—one-tenth of a milliliter. “It’s a little like [nuclear] fusion,” Mignot says of proteomics. “For 20 years, we’ve been saying that it’s going to be the next revolution, and we’re still waiting. However, I think it’s really happening now.” Proteins can be used to identify physiological states and health problems long before other diagnostic tools. For instance, they may reveal precisely what is happening with someone’s circadian rhythms. “If you travel from Tokyo,” Mignot says, “I can take a blood sample and see that you’re still on Tokyo time.”

Until now, much sleep data has been based on self-reported descriptions—whether study subjects snore or move about—but Mignot’s goal is to shift away from this model. He explains that many people who complain of insomnia think that they are asleep for only an hour or two but are actually asleep for five or six hours. Since perception of one’s own sleep is often foggy, he wants the hard data—the knowledge of which brain waves correlate with which proteins in the context of specific genotypes.

Alongside the revolution in hardware—wearable devices that track brain waves and sleep stages—the data revolution has transformed how much information can be processed. Now, in a sleep clinic, computer algorithms can analyze brain waves and draw correlations between sleep patterns and thousands of proteins and genes. Eventually, once data has been compiled from a sufficient number of patients, the information from gene sequencing and a drop of blood might suffice to diagnose a sleep disorder.

“There are hundreds of companies—literally hundreds—that are trying to measure sleep as a vital sign for health,” Mignot says. He himself designed a trial that would survey 30,000 people—a large enough number to derive accurate patterns from the data—using proteomics, genetics, hardware and computer analysis. An initial request for funding did not come through, but he is undeterred. “I am very persistent,” he says. “Sleep is going to be one of the next waves. It is ready for an explosion of understanding because of all of this new technology.”

If sleep research continues apace, the decades ahead promise advances in the understanding of how our biology regulates sleep and in the gadgets helping us to do so. Just as artificial light has thwarted our internal clocks, devices will attempt to reset them by managing sleep patterns and light exposure according to our genetics. As we forge ahead into one scientific revolution after another, our devices may steer us away from health problems by holding us to biological rhythms from the dawn of our evolution—while also allowing us to live our wildest dreams every time we close our eyes.

Deni Ellis Béchard is a senior writer at Stanford. Email him at dbechard@stanford.edu.
Welcome the New SAA Board Members

Jennifer Chou, ’00, AM ’01, JD ’05
Los Angeles, California
Jennifer Chou is an assistant US attorney with the US attorney’s office in Los Angeles, prosecuting violent crime. She clerked for the Honorable Barry G. Silverman on the Ninth US Circuit Court of Appeals, worked as a litigator with Latham & Watkins, and served as an attorney on Hillary Rodham Clinton’s 2008 presidential campaign. She teaches trial advocacy at USC Gould School of Law and recently joined the Board of Trustees for Chadwick School. She has volunteered with the Los Angeles alumni chapters for Cardinal Young Alumni and Stanford Law School, and she has served on the Law School’s Board of Visitors and the Stanford Alumni Committee on Trustee Nominations. She has also studied, taught and performed improvisational theatre for over 20 years.

David Hornik, ’90
Palo Alto, California
David Hornik is an investor, teacher, convener of people and lover of the arts. In his day job, David is a general partner at August Capital, investing in early stage high-tech companies. In his spare time, David has spent the last decade and a half as a lecturer at Stanford and Harvard, teaching intellectual property and entrepreneurship at the Stanford Graduate School of Business, and entrepreneurship and venture capital at Harvard Law School. David runs a technology conference called The Lobby (www.thelobbyconference.com), and was the co-creator and co-curator of TEDxStanford (a fantastic follow-up to his years running Branner Presents as an undergrad). While David doesn’t put his undergraduate degree in computer music to much direct use these days, he is a supporter of the arts at Stanford and beyond.

Bacardi Jackson, ’92
Miramar, Florida
Bacardi Jackson is the senior supervising attorney for children’s rights for the Southern Poverty Law Center for the state of Florida and managing attorney of the Miami office. At Stanford, Bacardi was an active student leader who served as chair of the Black Student Union, a resident assistant for Ujamaa and a co-founder of the Community Action Coalition for Justice. Bacardi also co-founded the Atlanta Black Alumni Association. In South Florida, Bacardi chairs the Broward College Foundation board and is a member of the Community Foundation of Broward and Women in Distress. She is also a charter member of the Women of Color Empowerment Institute. She was honored by the Sun Sentinel’s Legacy Magazine as one of South Florida’s 25 Most Influential and Prominent Black Women in Business and Leadership, and by the Dade County Bar as a featured lawyer in its SuperStars in Trial.

Phil Satre, ’71
Reno, Nevada

Andrei Stamatian, ’00
Bucharest, Romania
Andrei Stamatian is head of digital channels at UniCredit Bank in Romania. His first job after graduation was in economic litigation consulting, working for Cornerstone Research in Menlo Park. He then earned an MBA degree from INSEAD in France. Since 2004, Andrei has returned to his native Romania to work for several universal commercial banks. At Stanford, he worked as a studio operator for SITN and was a participant in the Bing Overseas Studies Program in Paris, France. Additionally, he has undertaken undergraduate research on the reform of the Romanian banking system as a Chappell-Lougee grant recipient. Since 2016, Andrei has been the chair of Stanford’s Outreach Volunteer Alumni Link (OVAL) in Romania. He is also an enthusiastic participant in Sanford’s Alumni Research Experience Program (AREP).

Jonathan Steuer, AM ’92, PhD ’95
New York, New York
Jonathan Steuer manages the research, advanced media, and investment operations & analytics teams at Omnicom Media Group (OMG). OMG Research consolidates all of OMG’s media and consumer research capabilities; OMG Advanced Media manages development and deployment of advanced TV solutions and other data-driven, cross-platform and audience-based media planning, buying and reporting solutions for use across OMG’s media agencies; and OMG Investment Operations & Analytics develops and manages marketplace demand and forecasting and media inventory tools to support OMG’s integrated investment team. Prior to joining OMG, Jonathan served as chief research officer at TiVo; before that, he managed the design and deployment of the pioneering cross-media research effort for AT&T AdWorks. In addition to his PhD in communication theory and research from Stanford, Jonathan earned his AB in philosophy from Harvard College in 1988.

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To stand apart . . . means giving yourself the critical break that media cycles and narratives will not, allowing yourself to believe in another world while living in this one.

How to Do Nothing: Resisting the Attention Economy, by Jenny Odell, Melville House Publishing
We Recommend

For Long Winter Nights

**Rough Magic: Riding the World’s Loneliest Horse Race**
Lara Prior-Palmer, ‘18; Catapult. At 19, she rode horseback across Mongolia, trailing Genghis Khan (so to speak)—and made history. All on a whim. As one does.

**Tough Love: My Story of the Things Worth Fighting For**
Susan Rice, ’86; Simon & Schuster. A candid memoir about negotiating a high-powered public service career, parenting pressures and long-reaching political landmines.

**Biased: Uncovering the Hidden Prejudice That Shapes What We See, Think, and Do**
Jennifer L. Eberhardt; Viking. Before we can overcome our ingrained stereotypes, says this psychology professor, we have to admit they exist.

**Royal Holiday**
Jasmine Guillory, JD ’02; Berkley. Lawyer by day, bestselling romance novelist by night. We don’t know where Guillory finds the energy, but our nightstands are glad she does.

**Music: A Subversive History**
Ted Gioia, ’79, MBA ’83; Basic Books. Meet the revolutionaries behind centuries of musical progress. You’ll never listen to Bach the same way again.
Invisible Handcuffs
By Brian J. Sroub, MBA ’85
His MBA opened many doors. Vicariously, you will start scores of ventures, test corporate tolerance at P&G and try to re-fertilize entrepreneurial DNA into GE, Sony & Cleveland Clinic. “Cleverly written, imaginative, sobering & spiked with humor,” Handcuffs is a must read for anyone who wants to know how businesses really work. Perfect gift for that ambitious one on your list.

The Great Connecting: The Emergence of Global Broadband, and How That Changes Everything
By Jim Cashel, ’83
What happens when affordable broadband finally reaches the half of the planet that has little or no internet access? The Great Connecting may be the most significant global event of our era. Visit http://www.BroadbandEverywhere.org.

Disrupted Realism: Paintings for a Distracted World
By John Seed, ’79
The first book to survey the works of contemporary artists who are challenging and reshaping the tradition of Realism. It showcases works by 38 painters who “disrupt” the imagery of their paintings with techniques that reflect their perceptions and emotions. http://www.schiffer-books.com

I Should Have Quit This Morning: Adventures in Minor League Baseball
By Kathy Diekroeger, MBA ’88
The road to Major League baseball goes through the minor leagues. Every year there are over 5,500 players working their way to the top of the tiered minor league system. This collection of stories from actual minor league players is a hilarious, heartbreaking and honest account of the struggle to make it to the big leagues.

The God Child
By Stuart Rawlings, ’65
Donald Trump is challenged by Jesus, then by Jefferson, Lincoln, and Eleanor Roosevelt, and then by a powerful alien girl in this fast-moving, provocative tale. Other characters include Mohammed, Moses, Buddha, Hitler, Michelangelo, Shakespeare and Einstein. This is the third book in a trilogy, after Another Messiah (2004) and Delusions (2012). www.sierradreamspress, (530) 878-8831

Happy Birthday – You’re Old: A Boomer’s Guide to Aging and Other Unexpected Developments
By R. Wayne Morgan, ’69
Nearly every health issue of old age can be prevented, postponed, or healed. This is the central premise of Happy Birthday. With humor and scientific clarity, a former health educator provides insight into the challenges now faced by Baby Boomers. Along the way, the author shares some of his life stories with the hope that readers will reflect on—and savor—their own.

Heart-Sparking Performance: It’s about Consciousness, (and it’s about time)
By Jon Root, ’86
Stanford Olympic Gold medalist, world traveler, spiritual warrior, and young adult sports coach, Jon Root presents a must have “map” discussing, weaving all 5 circles of consciousness, the physical truths and metaphysical tenets, involved in performance and change. The perfect book to inspire and heart-spark a vision for 2020, the year of balance in motion. Don’t overthink it. Heart-spark it.

On Spilled Blood
By William C. Oelfke, ’63
A series of bombings and assassinations resulted in Oliver and Maxine Saxon being called back to their old jobs at Homeland Security for a week of intelligence work. They made limited progress but later, as they cruised the Baltic on their second honeymoon, they found themselves in a deadly game with this hidden assassin, known only as the Contractor.
SAFE: Guidelines to Prevent Child Molestation in Mentoring and Youth-Serving Organizations
By Becky Cooper, BA ’76, MA ’77 and Daniel Chavira, MD ’03, Ely Arévalo, and Michelle Smith

Each year, 35 million adults come in contact with more than 80 million young people through activities provided by youth-serving agencies. SAFE offers practical, tested tools to prevent child predators from turning mentees into sexual abuse victims. www.safementoring.com

Letters Home from Stanford
By Alison Carpenter Davis, ’79

From first letters home freshman year and firsthand accounts of historical events, to questions about self—and laundry—these letters, emails, and texts evoke Stanford students’ shared experience across the decades. One person’s correspondence tells one Stanford story. Together, they tell all of ours.

Never Be Old Enough to Know Better and You Will Succeed in Life and Business
By Samuel K. Freshman, BA ’54, JD ’56

Sam has succeeded throughout life due to his focus, drive, and pragmatism. This book offers sound advice through suggestions, lessons, personal revelations, and short stories. Helpful for young adults getting their start in the world, but also great reminders for all to stay on track for success. www.standardmanagement.com

Faith at Hand: Finding My Way to Depth Journaling
By Barclay Braden PhD, AB ’63

More than a memoir … discover a simple method for deepening psychospiritual inquiry through written dialogue with the nondominant hand. Engage both sides of your brain, develop new neuropathways, and reveal hidden perspective. Follow an absorbing 30-year exploration of one traditional psychologist in her unanticipated search for new awareness. barclaybraden.com

The Last Viking
By Jon Rant, ’73

The Last Viking is a historical novel set in 9th Century England during the reign of Alfred the Great, when the Viking invasions of Britain were at their peak. Set squarely in the midst of the Dark Ages, the story mirrors the dynamic social, military and political conflicts of the era, when Christian culture and learning were threatened by a wave of barbarism from abroad.

Deadly Dance
By Darville Knowles, M.D., ’74

DEADLY DANCE is one of the most intricately plotted novels to date. Darville Knowles MD an African American writer shows his mastery as a storyteller and creator of characters who break the mold of stereotypes. An exceptional murder mystery not to be missed. Available on Kindle. Coming soon! SISTERHOOD OF THE AGING BEAUTY QUEENS.

In Love with Earth
By Marc McGinnes, ’63

This memoir by environmental pioneer Marc McGinnes chronicles his involvement in the 1969 Santa Barbara Oil Blowout and first Earth Day events before co-founding the Environmental Defense Center, the Community Environmental Council, and the Environmental Studies Program at UC Santa Barbara, sharing the birth of the environmental movement.

A Walker’s Sketchbook of San Francisco - A Guide to its Streets Plus 20 Great Walks
By Eleanor George Burke, ’60

In 2015 this grandmother decided to walk every street in San Francisco, her home town, and sketch what she saw. She wandered through every neighborhood, striking up conversations with strangers everywhere, discovering new places, riches, cafes, parks, murals and so much more. The book is an encouragement to get out and walk. eleanorgeorgeburke@gmail.com
Walking Manhattan’s Neighborhoods – a sketchbook
By Eleanor George Burke, ’60
The second in a series, this book illustrates the vibrancy, color and highlights of Manhattan, emphasizing life on the streets. The author walked every street, during her many stays in Manhattan over the course of 50 years. Like the SF book, it was great fun, terrific exercise, a wonderful education – and it was safe. Sketches accompanied tell the story. eleanorgeorgeburke@gmail.com

Chapatis & Pancakes (A Recipe for Life)
By John August
This story of the Indian/Rajasthani wife, American/Connecticut husband and their new born son twists and turns with the mix-up of cultures, interspersed with ghosts and dreams. Chapatis and Pancakes celebrates the positive power of family and friends in these tumultuous times.

Go, See, and Do
By Davis Hawkins, ’69
Davis Hawkins lives a life of adventure, approaching each day with the mantra to “Go, See, and Do.” Living on the U.S. west and east coasts, 14 years in Asia, and traveling to over 80 countries spanning all seven continents has resulted in his finding human shrunken heads in Borneo, trekking in the Himalayas and Amazon jungle, camping in the Gobi Desert, couriering for the President of the United States, receiving a U.S. congressional subpoena, surviving a military coup, and much more. See more at goseeendo.com.

Bridging the Achievement Gap: What Successful Educators and Parents Do
By Rex Fortune, Ph.D. Education ’72
Includes 11 examples of K-12 high performing public schools which serve mostly African American students. The book argues that school district leaders with low performing schools should consider what these high performing schools do in their planning to reverse the on-going trend of relatively low performance of African American students.

Parenting from the Periphery
By Dale DePalatis, BA ’82, MA ’84
Dealing with teens can be difficult! Discovering a middle ground between draconian discipline and permissiveness, this book’s “ninja” parenting style allows young adults the freedom to fail within certain boundaries, giving them the respect and dignity they need to develop and mature into adulthood while maintaining a positive relationship with their parents.

San Francisco Civic Center: A History of the Design, Controversies, and Realization of a City Beautiful Masterpiece
By James W. Haas, ’64
The untold 150-year story of inspiration and controversy surrounding San Francisco’s Civic Center. The Civic Center is one of the finest achievements of the American reformist City Beautiful movement and a stunning manifestation of one of the nation’s most dynamic and creative cities.

Jumping Out of the Mainstream: An American Family’s Year Abroad
By Caroline DePalatis, BA ’85
We had always thought we would raise our kids overseas. And then we got into our comfortable American life and almost let the dream slip away. But we did it, moving our family of five to live in China for a year. It changed everything. I’ve written this book to inspire other families to do the same. Five stars on Amazon. Go check out the reviews—and take an adventure with us!

The Innovative Parent: Raising Connected, Happy, Successful Kids through Art
By Erica Curtis, LMFT, ATR-BC and Ping Ho, MA, MPH ’76
This 2019 National Parenting Product Awards winner makes art therapy trade secrets accessible to the public to help children and teens understand and express emotions, communicate nonverbally, build connections, solve problems, manage challenging behaviors, and more. For the non-arty and professionals, too.

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Stanford Authors’ Showcase

Tales of Our Times
By Richard L. Burns, ’52

A collection of tales examining contemporary life in all its gore and splendor. Murder, greed, neglect and lust permeate several stories. In others, a special meal with a perfect partner and reflections from a couple who have “made it through,” shine bright against the darkness. “Tales of Our Times” is sharp and sweet. The stories may be quick to read, but they linger. Timely and real, Burns reminds us that, eventually, good guys finish first. (Book review)

A Song of Humanity: A Science-Based Alternative to the World’s Scriptures
By James Gordon Clawson, ’69

What would an omniscient scientist teach their children about the origin of the universe and mankind? And about what people around the globe believe and should know about their world? How would they frame and phrase memorable lessons on every important aspect of life? Here is one man’s song with over 900 citations. www.a-song-of-humanity.com

Flash of Green: Memories of World War II
By Charles S. McCandless, ’39

Wounded by the first explosions at Pearl Harbor, Charles McCandless went on to fight in critical World War II battles. Shot down over Midway. Crash-landed at Guadalcanal. Did reconnaissance off the shores of Iwo Jima. He revealed all of this to his family through the vivid storytelling of this private memoir, a work that brings fresh insights and humanity to one of the most consequential military struggles in history. www.flashofgreenmemoir.com

Teaching Controversial Issues
By Professor Emeritus, Nel Noddings PhD ’73 and Laurie Langer MS ’79

Not just for Educators! To think critically we must learn to distinguish between verifiable facts, opinions, and outright fictional propaganda. For too many of us it goes against our upbringing to discuss controversial issues (religion, politics), but in this time of increased tribalism we must talk to one another across these divisions. This book gives some ideas on how to start.

From Berlin to Hollywood and Beyond
By Marianne Farrin, ’60

Marianne Farrin’s riveting memoir, From Berlin to Hollywood and Beyond, chronicles her journey from a childhood in World War II Berlin, post-war Denmark, immigrating to Hollywood, marriage and parenthood living in nine countries, to her own personal discovery. The book reveals the dislocation of war and loss, the challenges of faith, and ultimately finding identity as German, Danish, and American.

Unbroken Spirit
By Henry Brent Crichlow, PhD ’72

Two families, one black from Africa, one white from Europe, survive slavery, wars, famine, riots, discrimination, poverty and love, in Africa and the Americas. Their football playing descendant reunites them through marriage, returning to Africa for World Cup Football, 200 years after both their ancestors left, one as a young Ashanti slave and the other as the Seville cabin boy on the same slave ship. https://www.facebook.com/UnbrokenSPIRIT-17914089855605/

Murderabilia
By Carl Vonderau, ’76

Everyone has heard of The Preying Hands and the photographs of his victims’ bodies. But no one knows that William is The Preying Hands’ son. “Carl Vonderau uses his gift for prose and character to transform the classic serial killer tale into something more haunting and powerful; a tale about family and how an act of physical violence perpetrated by one member inflicts emotional damage to all.” —Criminal Element

 Silence the Voices: Discovering the Biology of Mind Chatter
By Grant McFetridge, MSEE ’84

Here is a story of 22 years of effort to understand the cause of ‘voices’ and find an effective treatment. Written like a detective mystery for laypeople and professionals alike, we eventually discovered that the underlying cause of voices is a subcellular fungal infection. Well-tested, simple and fast non-drug treatments were developed based on the newly emerging fields of subcellular psychobiology and psycho-immunology.

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A STILL QUIET PLACE FOR ATHLETES
By Amy Saltzman MD, ’86
Written by Amy Saltzman, a holistic M.D., mindfulness coach, varsity athlete andHum Bio major, this book provides practical, step-by-step exercises to help you gain present-moment awareness, develop resilience, and ultimately find flow. These skills are also extremely valuable in the classroom, at work, and in life. Dr. Amy’s clients include youth athletes, national champions, elite teams and university athletic departments. drama@stillquietplace.com

SEEDS OF WELL-BEING POEMS
By Kent Burnett, PhD ’84 and Margaret Crosbie-Burnett, PhD ’83
This book brings together ideas derived from ancient philosophers, contemporary research findings from the social and behavioral sciences, and nearly 80 years of experience in psychology between us. The result is a concise, simple to follow book that explains our five-step model for staying cool and constructive in the face of change and challenge. The accompanying poems make learning about the five steps more fun and memorable.

SQUISHED: Jackie Kennedy, Espionage, Murder And Me
By Philip Myers, ’74
“You’re going to end up squished in a trash can,” Jackie told Myers at the beginning of a 2-year collaboration to find the killer of her friend, a Russian who spied for the US. The overlap with the JFK assassination became obvious. Her only freelanced book project is a stunning true tale with Stanford links. Watch Myers read Chapter 1 on YOUTUBE by searching: PhilMyersAuthor.

FROM POVERTY TO … NOT
By Michael Holt, MS, ’86
How does one rise from poverty? My path was by gaining intellect via athletics. Follow this path as I evolved from picking cotton for three dollars per day in southeast Missouri to running a world-wide, Value Engineering Program in the Nation’s capital. This painfully humorous variety of true stories offers more understanding of life including poverty, hunting, fishing, athletics, misperceptions, the environment, transgender, race, and politics.

GEWGILIT: A.I. encounters the Great I Am
By Tom Ingram, ’70
When several successful Stanford alumni reunite to help a supercomputer named ‘Gewgilit’ achieve Artificial SuperIntelligence, the computer thinks it can do no wrong. But as Gewgilit seeks to determine its next overriding objective, how does it factor in the value of humanity? And what does God have to do with it? You can find this mind-blowing and prescient thriller exclusively on Amazon.

HOW SWEET THE SOUND
By Courtney Guest Kim, ’92
A Bible Church girl from Texas falls in love with a French lapsed Catholic in a Stanford religious studies class. ... What could go wrong? Let them run the gauntlet of irreconcilable differences and sorrowful setbacks to a happy end. Two very different people join hands on a journey that neither one was expecting. “The deep spiritual introspection and absolutely gorgeous prose make this book an excellent read...” —CatholicReads.com
www.courtneyguestkim.com

UNSCRIPTED: Experiences of a Hospice Volunteer, the Joy in the Journey and Thoughts on End of Life Care
By Lesley Andrus, ’68
Having lived through the death of her husband, a young mother and her two sons move to a small mountain town where she becomes a Hospice volunteer. These are stories of her experiences and discovery of a new way of looking at death, dying—and living.

KNOW MY NAME
By Michael Carley, MA ‘96
This debut novel follows the life of a young introvert, Andrew Grey, cut off by circumstances from his few human contacts. We see what happens to Andrew and those around him as he disappears from their lives. This is a novel of human connection and life’s maddening randomness and our attempts to make meaning of it. It is ultimately about the ripple effects of each of our lives, intended or not.
Prominent Particle Physicist

The quests for dark matter in the cosmos and for inclusivity and diversity in science marked Ann Nelson’s career as a prizewinning theoretical physicist.

Ann Elizabeth Nelson, ’80, who taught at the U. of Washington, died August 4 when she fell while hiking with her husband and friends in the Central Cascades. She was 61.

In a field dominated by men, Nelson never let her gender inhibit her passion for science. As a high school senior in Lafayette, Calif., she enrolled in physics classes at UC Berkeley. The only time she felt slighted, according to David Kaplan, ’80, her husband and a fellow UW physics professor, was when her high school science teacher excluded her from the all-male math team.

At Stanford, Nelson was one of a handful of women who took advanced freshman physics and honors calculus. “My first impression of her,” says Kaplan, “was being struck by how she would fall asleep in the front row of class and snore, while being the only person to get A-pluses on all her tests.”

Nelson earned a PhD at Harvard, where she and Kaplan studied with the prominent theoretician Howard Georgi, who eulogized her as “the only student I ever had who was better than I am at what I do best.”

Her research sought to expose and address the shortcomings of the Standard Model, the long-accepted basis for explaining how particles in the universe interact. For her work, she won the J.J. Sakurai Prize, considered the highest prize in particle physics outside the Nobel, as well as a Guggenheim Fellowship and election to the National Academy of Sciences.

“My wife never bragged,” says Kaplan, “and she never said anything bad about anyone—and that’s incredibly rare in the academic world.”

As a mom, Nelson was known for donning an Easter bunny costume and hopping around the park hiding eggs for her children and their friends, recalls her daughter, Sierra Kaplan-Nelson, ’16.

After Nelson’s death, her husband received a message from a former Stanford graduate student who’d attended a research seminar Nelson had taught at the Stanford Linear Accelerator Center. “Sitting at her talk I suddenly found myself crying,” the former student, now a professor, wrote. “For the first time in my life I saw someone who looked like a possible extrapolation of myself . . . I never thought about becoming a physics professor as a realistic option, because none of the physics professors were young women.”

In addition to her husband and daughter, Nelson is survived by her son, Gabriel Kaplan-Nelson; parents; and two sisters.

—John Roemer
Mountain Division in Italy. He worked as a reporter and editor in the Bay Area, then entered the field of public relations in Southern California and ultimately started his own firm. He was an avid golfer, tennis player, and art collector and a lifelong fan of Stanford sports. He earned a master's degree in social work from Catholic U. in 1975. She worked first for the Red Cross in Fort Lewis, Wash., then raised her children as a military spouse in many parts of the U.S. and in Korea, Puerto Rico and Taiwan. She was a social worker for Arlington County, Va., for over 30 years. In retirement, she served her community through the League of Women Voters and pursued interests in writing and literature. She was also an elder and provided counseling services for Hope Lutheran Church. She was predeceased by her former husband, Charles. Survivors: her children, Charles III; Elizabeth and Robert; four grandchildren; and three great-grandchildren; and brother.

Margaret Frances Robertson Honour, '45 (psychology), of Springfield, Va., June 29, at 95, of breast cancer. She earned a PhD at Harvard in 1969 and was a professor at Stanford from 1972 to 1999. She served as editor of the Stanford Daily. She was a long-time supporter of the Stanford University Press and was a member of the board of directors of the executive committee of the California Newspaper Publishers Association, and she was recognized for her efforts to promote freedom of information. In retirement, she served on the city council, the Chamber of Commerce, as mayor and as a member of the Siskiyou County grand jury. She also developed a passion for piloting gliders and single-engine planes. She was predeceased by her former husband, Orbell, '48. Survivors: her children, Virginia Dietzman, April Farrell and John; two granddaughters; three great-grandchildren; and three siblings.

Constance Fish Arnosti, '50 (education), of St. Paul, Minn., December 6, 2018, at 90, after a brief illness. She taught elementary school, then moved to Milwaukie, where she raised her children. She and her husband later purchased an industrial distributorship, Northwest Iron & Supply. After a visit to Spain in 1959, she learned German and French, established a Swiss branch of the family business and found a second home in Basel. She enjoyed canoeing, bicycling, gardening and nature, and she worked to accomplish peace as an active member of Beyond War, a global peace initiative founded by Stanford professors, and the Society of Friends. She was predeceased by her husband, Anton, '50. Survivors: her children, Nancy, Donald, David and Carol; and 10 grandchildren.

Harleigh T. Knott, '50 (history), of Morro Bay, Calif., March 2, at 90. Her three loves were art, ancient history and opera. She was a civilian employee at the Pentagon and then at the U.S. Embassy in London. She returned to Stanford to direct a student residence for a year, worked in Australia and then became a secretarial administrator for the cardiology department at Stanford Medical School. She traveled widely, especially in the Middle East, and pursued her broad and numerous interests by supporting Stanford initiatives and community service projects. She was predeceased by her husband, Daniel, '46 (sociology), of San Mateo, June 10, at 95.

Barbara Helen Lee Abshier, '48 (nursing), of Balboa Island, Calif., March 25, at 92. As a student she enjoyed folk dancing at Roble Gym. She found fulfillment in church life wherever her family moved for husband's career in the petroleum industry, including Taft, Calif., Vanderbit, Tex., Denver and Fullerton, Calif. In recent decades, she was also active in PEO. She especially enjoyed travel adventures with family and friends. She was predeceased by her husband of 52 years, T.J. Survivors: her sons, Stan, '77, and Tom. Jacqueline Appel, '49 (Spanish), of Bakersfield, Calif., July 8, at 91. She earned a master's degree in education from Fresno State in 1964 and taught at Bakersfield College until 1983. Her many interests included camping, opera, ballet, travel, bridge, volunteering at the Kern County Library and showing border terriers and Boston terriers.

Robert James Bennett, '49 (communication), of Modesto, Calif., June 23, at 91. He was a member of Theta Delta Chi. After working as a journalist, he joined the family consumer and agricultural products business, J.S. West & Co., where he spent 64 years and rose to become president and chief executive officer. He was a fan of Stanford football and women's basketball. He enjoyed gardening, fishing and taking an active role in the local schools and in children's activities. He was predeceased by his wife of 63 years, Patricia. Survivors: his children, Lauri Balbi, Mark, Kim Blakeslee and Lisa Yount; 14 grandchildren; and five great-grandchildren.

Louise Justine Burrill Ebeling Geraci, '51 (economics), MA '53 (education), of Medford, Ore., April 17, at 89. After graduation, she traveled the world working for Pan Am. She later earned an EdD from USC and a JD from Golden Gate U. As an educator, she was a high school teacher, principal and superintendent, a lecturer at San Francisco State and an assistant professor at Ohio U. In her legal career, she was a law librarian, law clerk and assistant prosecutor in Meigs County, Ohio. She also received grants from the National Science Foundation to support research on economics and on race relations. She was honored with awards for her professional and community service activities and served as the Class of '51 Class Notes correspondent from 1997 to 2017. She was predeceased by her husband, Charles, '44, MD '47. Survivors: her children, Kathryn Pelkey and Douglas Ebeling; six grandchildren; three great-grandchildren; and sister.

John A. "Jak" Kirtland, '51 (electrical engineering), of San Jose, April 22, at 90, of congestive heart failure. He was a member of Theta Delta Chi. After graduation, he was commissioned in the Navy's civil engineering corps. He served two years on active duty during the Korean War and 30 additional years in the reserves. He was a member of the Institute of Electrical and Electronics Engineers and served his community through Rotary and as a volunteer at the Tech Museum of Innovation. Survivors: his wife of 64 years, Betty; sons, John, '78, MBA '83, and Ted, '73, and five grandchildren.

Hiram Stokes Dillin, '51 (civil engineering), JD '58, of Roseville, Calif., June 21, at 89, of cerebrovascular disease and vascular dementia. He was editor of the Stanford Law Review. He served in the Navy during the Korean War. In civilian life, he was a lawyer in private practice in Sacramento. He enjoyed gardening, fishing and taking an active role in the local schools and in children's activities. He was predeceased by his wife, Margaret, '51, and by his former husband, Orbell, '48. Survivors: his children, Geraldine; sons, Scott and Mark; seven stepchildren; two granddaughters; and five siblings.

Daniel Devor, '51 (chemistry), MA '56 (psychology), of Riverside, Calif., May 27, at 90, of heart disease. He earned his MD at USC and was a general and vascular surgeon. He worked at Kaiser Permanente for 25 years and was chief of surgery at KaiserAnaheim. Survivors: his wife, Nina; daughter; two stepchildren; and four grandchildren.

Joseph William "Joe" Durand, '51 (communication), of Mount Shasta, Calif., June 28, at 90. She was editor of the Mount Shasta Herald and the Mount Shasta Messenger. She was named to the board of directors and the executive committee of the California Newspaper Publishers Association, and she was recognized for her efforts to promote freedom of information. In retirement, she served on the city council, the Chamber of Commerce, as mayor and as a member of the Siskiyou County grand jury. She also developed a passion for piloting gliders and single-engine planes. She was predeceased by her former husband, Orbell, '48. Survivors: her children, Virginia Dietzman, April Farrell and John; two granddaughters; three great-grandchildren; and three siblings.

Christopher Adam "Chris" Eubanks, '51 (business), of Sandpoint, Idaho, May 19, at 93, of complications from vascular disease and vascular dementia. He earned his MD at USC and was a general and vascular surgeon. He worked at Kaiser Permanente for 25 years and was chief of surgery at KaiserAnaheim. Survivors: his wife, Nina; daughter; two stepchildren; and four grandchildren.

Margaret Frances Robertson Honour, '45 (psychology), of Springfield, Va., June 29, at 95, of breast cancer. She earned a PhD at Harvard in 1969 and was a professor at Stanford from 1972 to 1999. She served as editor of the Stanford Daily. She was a long-time supporter of the Stanford University Press and was a member of the board of directors of the executive committee of the California Newspaper Publishers Association, and she was recognized for her efforts to promote freedom of information. In retirement, she served on the city council, the Chamber of Commerce, as mayor and as a member of the Siskiyou County grand jury. She also developed a passion for piloting gliders and single-engine planes. She was predeceased by her former husband, Orbell, '48. Survivors: her children, Virginia Dietzman, April Farrell and John; two granddaughters; three great-grandchildren; and three siblings.
quantitative and systematic approaches to archeology. He was predeceased by his wife of eight years, Cynthia Wild. Survivors include his niece, Richard Haynes Leonard, ’52 (economics), of Portland, Ore., February 13, at 88, of complications from pneumonia. He was a member of Alpha Delta Phi and the football team. He served in the Army Reserve during the Korean War. He spent 30 years in the retail industry in Portland, including terms as vice president of Spouse-Reitz and chair of the Oregon Retail Council. In retirement, he purchased and operated a custom cabinet net business with his son Chris. He was predeceased by his son Peter. Survivors: his wife of 66 years, D. (Kolar, ’53); his children, Chris, ’81, and Libby Leonard Pugel, ’85; seven grandchildren; and three great-grandchildren.

Jane Arbuthnott Graham Lesh, ’53, of Castro Valley, Calif., January 19, at 86. Motherhood and a young family did not hinder her from graduating Phi Beta Kappa from Occidental College. She later earned a master’s degree in library science from SUNY-Geneseo, served as a librarian at Convent of the Sacred Heart School in San Francisco and was the chairman and first executive director of Bay Area Independent School Librarians. She was predeceased by her husband, Michael. Survivors: her three children; five grandchildren; and three great-grandchildren.

Noel H. de Nevers, ’54 (chemical engineering), of Salt Lake City, January 4, at 88. He wrote for the Chapparal. He earned a PhD in chemical engineering at the U. of Michigan and was a professor of chemical engineering at the U. of Utah from 1963 to 2002. He worked for Chevron Research Co. from 1958 to 1963 and for the U.S. Environmental Protection Agency from 1971 to 1972. His textbooks and research focused on air pollution control and energy policy. In 2016 he published a nonfiction work, The Kolob Tragedy: The Lost Tale of a Canyoneering Calamity. He discovered and named Private Arch in Arches National Park. Survivors: his wife, Klancy (Clark, ’55); children, Clark, Nanette Epstein and Renee, ’82, and seven grandchildren.

Henry McArthur Duque, ’54 (political science), of Sacramento, Calif., December 24, at 87. He was a member of Phi Kappa Sigma. Before he began his banking career, he served three years in the Marine Corps. He worked first at Union Bank and then for 23 years as vice president of Western Federal Savings & Loan. In his later career, he worked at California Federal, Trust Services of America and Leftcourt Group. In public service, as a commissioner for the California Public Utilities Commission from 1995 to 2003, he used his gift for listening and finding fair and equitable solutions to protect California’s resources. He was predeceased by his wife of 53 years, Judy. Survivors: his children, Adrienne Duque Cook, ’83, Carolyn, Sue and Rick; six grandchildren; and two sisters.

Robert Woolston “Bob” Jurgensen, ’54 (economics), of Solvang, Calif., June 21, at 87, of lung cancer. He was a member of Sigma Nu and ROTC and served in the Army after graduation. He earned an MBA from Pepperdine and joined the family business, Woolston Jewelers. After 20 years and serving as president, he shifted fields to teach and coach at Dunn School in Solvang. He supported community and charitable institutions, particularly the Solvang Festival Theater and PCPA Foundation, as well as the local Christian Church. He was an avid fan of the Dodgers, jazz, cooking, golf and Hawaiian vacations. Survivors: his wife of 66 years, Jan (Altick, ’54); children, Ken, ’77, Doug, Lynn and Neil; four grandchildren; and three siblings.

Peter Welham Brickell Trueblood, ’54 (international relations), of London, June 29, at 86, of bladder cancer. He was a member of Alpha Delta Phi. After two years of Army service in Frankfurt, Germany, he began a career with Bank of America in San Francisco, followed by Antwerp, Belgium, and Manchester, England, before remaining as a credit supervisor in London. He spent the final 18 months before his retirement in Nairobi, Kenya. He was predeceased by his wife, Nancy (Nicholson, ’54). Survivors: his wife, Elizabeth Yull Trueblood, and three children.

Richard Thomas Breuner, ’55 (economics), of Bozeman, Mont., July 5, at 87. He was a member of Theta Delta Chi and Air Force ROTC. After graduation, he served in the Strategic Air Command on board a B-47 Stratojet. Following his military service, he joined his family’s furniture business, already a century old at the time. He imparted his love of the outdoors to his children and grandchildren while exploring the Sierras and Lake Tahoe Basin. He enjoyed fly-fishing on the Madison River, Hebgen Lake and Henry’s Fork, and he worked to restore access for migratory fish. Survivors: his wife of 58 years, Jeanne; son, Drake; daughter, Jeanette, ’87, and Ann; 10 grandchildren; great-grandchild; and sister, Clare Breuner Cummings, ’51.

Paul C. Randauf, ’55 (geology), MD ’70, of Manhattan Beach, Calif., April 27, at 86, of a spine injury after a fall. He was a member of the Alpine Club and served in the Army. He earned a master’s degree in petroleum geology from the U. of Iowa and worked for Standard Oil, then switched fields to medicine, with additional training in emergency medicine at USC. He practiced for 35 years at Little Company of Mary Medical Center in Torrance, Calif. He was an avid outdoorsman, marathon runner, hiker and hiker. Survivors: his wife, Christine; children, Julie Carr, Kevin and Colin; and five grandchildren.

Richard John “Dick” Wylie, ’55 (political science), JD ’58, of San Jose, December 21, 2018, at 85. He was a member of Theta Chi and the football team. After working for the Legislative Counsel’s Office in Sacramento and as an assistant district attorney for Contra Costa County, he went into private practice. He served in the California Mountain Lion Foundation, the Sierra Club and the Clean Water Act. He was a member of the board a B-47 Stratojet. Following his military service, he joined his family’s furniture business, already a century old at the time. He imparted his love of the outdoors to his children and grandchildren while exploring the Sierras and Lake Tahoe Basin. He enjoyed fly-fishing on the Madison River, Hebgen Lake and Henry’s Fork, and he worked to restore access for migratory fish. Survivors: his wife of 58 years, Jeanne; son, Drake; daughter, Jeanette, ’87, and Ann; 10 grandchildren; great-grandchild; and sister, Clare Breuner Cummings, ’51.

Shirley Davis Ambrose, ’55 (political science), of Davis, CA, July 13, 2013, at 87. Survivors: her three children; five grandchildren; and three great-grandchildren.

Jane Arbuthnott Graham Lesh, ’53, of Castro Valley, Calif., January 19, at 86. Motherhood and a young family did not hinder her from graduating Phi Beta Kappa from Occidental College. She later earned a master’s degree in library science from SUNY-Geneseo, served as a librarian at Convent of the Sacred Heart School in San Francisco and was the chairman and first executive director of Bay Area Independent School Librarians. She was predeceased by her husband, Michael. Survivors: her three children; five grandchildren; and three great-grandchildren.

Noel H. de Nevers, ’54 (chemical engineering), of Salt Lake City, January 4, at 88. He wrote for the Chapparal. He earned a PhD in chemical engineering at the U. of Michigan and was a professor of chemical engineering at the U. of Utah from 1963 to 2002. He worked for Chevron Research Co. from 1958 to 1963 and for the U.S. Environmental Protection Agency from 1971 to 1972. His textbooks and research focused on air pollution control and energy policy. In 2016 he published a nonfiction work, The Kolob Tragedy: The Lost Tale of a Canyoneering Calamity. He discovered and named Private Arch in Arches National Park. Survivors: his wife, Klancy (Clark, ’55); children, Clark, Nanette Epstein and Renee, ’82, and seven grandchildren.

Henry McArthur Duque, ’54 (political science), of Sacramento, Calif., December 24, at 87. He was a member of Phi Kappa Sigma. Before he began his banking career, he served three years in the Marine Corps. He worked first at Union Bank and then for 23 years as vice president of Western Federal Savings & Loan. In his later career, he worked at California Federal, Trust Services of America and Leftcourt Group. In public service, as a commissioner for the California Public Utilities Commission from 1995 to 2003, he used his gift for listening and finding fair and equitable solutions to protect California’s resources. He was predeceased by his wife of 53 years, Judy. Survivors: his children, Adrienne Duque Cook, ’83, Carolyn, Sue and Rick; six grandchildren; and two sisters.

Robert Woolston “Bob” Jurgensen, ’54 (economics), of Solvang, Calif., June 21, at 87, of lung cancer. He was a member of Sigma Nu and ROTC and served in the Army after graduation. He earned an MBA from Pepperdine and joined the family business, Woolston Jewelers. After 20 years and serving as president, he shifted fields to teach and coach at Dunn School in Solvang. He supported community and charitable institutions, particularly the Solvang Festival Theater and PCPA Foundation, as well as the local Christian Church. He was an avid fan of the Dodgers, jazz, cooking, golf and Hawaiian vacations. Survivors: his wife of 66 years, Jan (Altick, ’54); children, Ken, ’77, Doug, Lynn and Neil; four grandchildren; and three siblings.
He started his own recruiting firm in 1972. He also founded a nonprofit to help minority coaches and athletic administrators. He remained involved with Stanford through the athletic and alumni association boards and as a mentor to black football players.

He enjoyed a rich personal life through sport, hearing daily mass and interacting with the Trappist community of New Clairvaux. Survivors: his wife of 54 years, Kathleen Carmody; children, Nora, ’88, Thomas Carmody, Gerard and Margaret; four grandchildren; and two sisters.

David Alfred Duncan, ’59 (chemical engineering), MBA ’65, of Hillsborough, Calif., June 14, at 82. After starting a career in manufacturing at Procter & Gamble, he found a new course as a security analyst for William D. Witter on Wall Street. He began his civilian career with the New England Fish Co. and rose to president. With the President’s Committee on Food, he helped establish the current system for food nutritional labels, and he also worked to protect coastal waters from foreign fishing. In retirement he worked on urban renewal through the Commerce Department and local chambers of commerce. He especially enjoyed serving Meals on Wheels as a member of the board and volunteer driver. Survivors: his wife, Jeanne; children, Susan Renbold, Alison Kirk, of Hillsborough, Calif., and Linda Moran; and brother, Douglas, ’54.

1960s

Helen Gail Miller Katz, ’61 (history), of Los Angeles, August 5, at 79, of a brain tumor. She studied overseas with Stanford in Germany as the highlight of his college experience. He later learned Serbo-Croatian in Monterey, Calif., and served in Army intelligence. He studied architecture at UC Berkeley and worked at Esherick, Homsey, Dodge and Davis. He was a lifelong supporter of gay rights and served on the San Francisco LGBT Pride Celebration Committee. He never stopped working for the reopening of the city’s gay bathhouses following their closure in the 1980s.

Allan Henry Howe, ’63 (history), of Evanston, Ill., July 2, at 77. He was an active participant in the Wesleyan Foundation. After graduation, he was involved with Chicago youth services and was a community organizer for the civil rights movement. He received a master’s degree from the Associated Mennonite Biblical Seminary and then a Ph.D. in religion and human development at the University of Western U. In association with Reba Place Fellowship, he was a house leader, social worker, peace and nuclear freeze movement leader and preschool board chairman. He was predeceased by his son James. Survivors: his wife of 53 years, Jeannine; children, Mark and Kathleen; eight grandchildren; sister, Marcia Howe Adams, JD ’78; and brother, Bruce, ’66. 

James Ward “Jim” Johnson, ’63 (economics), of Kalispell, Mont., April 22. He earned a JD from the U. of Montana. He spent most of his legal career with the firm now known as Johnson, Berg and Saxby and focused on business and property law and estate planning. He also served as president of the Montana Bar Association. He filled leadership positions for the Great Falls school board, Optimists Club and Rotary Club and was an elder of the First Presbyterian Church. He enjoyed traveling with his wife to Germany and Portugal, his last trip was to Glacier National Park and restoring fast cars. He was predeceased by his wife of 54 years, Myrna. Survivors: his children, Michael, Erika and TJ; seven grandchildren; and three siblings.

David B. Moon Jr., ’64 (political science), of Rancho Santa Fe, Calif., July 23, at 78, of a spinal injury sustained while boogie boarding. He was a member of Delta Tau Delta. He earned a JD from UC San Diego. His legal career spanned more than 23 years as a trial judge, including his final position with the San Diego Superior Court. After retiring he led an independent mediation and arbitration practice and later joined the firm of Judicate West. He was known as a mentor to many in the San Diego legal community and for his love of guitar and fly-fishing. Survivors: his wife of 51 years, Lynn; daughters, Courtney Kepler and Whitney; three grandchildren; and three siblings.

Marc Ivan Hayutin, ’65 (political science), of Los Angeles, June 11, at 75. He earned a JD from Harvard. He began his career at Mitchell, Silberberg and Knupp, then founded Hayutin, Rubinstein, Praw and Kupietzky before heading the real estate department for Sidley. He served his community as co-founder of Santa Monica Synagogue, board member of the Los Angeles Chamber Orchestra and chair of Skid Row Housing Trust. His most recent cause was supporting the Right to Try Act to allow terminally ill patients to try life-saving drugs prior to approval by the Food and Drug Administration. Survivors: his wife of 54 years, Stephanie; children, Amy Contreras and Matthew; four grandchildren; and three sisters.

Stephen Luke “Zoggo” Zegura, ’65 (anthropology), of Tucson, Ariz., May 26, at 75, of a heart attack. He was a member of the golf team and Alpha Tau Omega. He earned his PhD in human biology from the U. of Wisconsin, where he was a Woodrow Wilson Fellow. After a first job at New York U., he taught physical anthropology and human genetics at the University of Colorado for more than 40 years at the U. of Arizona. He published numerous research papers on human origins, genetics and evolution. He enjoyed golf, the opera and visits to the Bay Area. He felt particularly attached to Croatia, his father’s homeland, and maintained a celebration committee there. Survivors: his wife, Elizabeth; children, Dan and Krista, ’10; two granddaughters; and brother.

Linda Lee LaBay Breeden, ’66 (history), of Piedmont, Calif., December 4, 2018, at 74, of breast cancer. She was a member of the swim team and studied abroad in Germany. She earned a JD from UC Hastings and worked for the Congressional Research Service and the Bay Conservation and Development Commission. With the Carter and Clinton administrations she fought to prevent the expansion of oil drilling, preserve wetlands, protect agricultural preserves and improve public access. She volunteered for the Pacific Coast Federation of Fisheries Associations. She was also an avid seamstress, music lover and cinephile. Survivors: her husband of 49 years, James, ’64, MD ’69; and daughters, Ellen and Katherine, MS ’13, PhD ’17.

Patricia Mary “Patti” Hanley, ’69 (English), of Los Angeles, August 19, at 71, of complications from surgery. She worked for a time at a salmon fishery in Alaska, lived on a kibbutz in Israel, studied in England, traveled to Russia, and worked as a legal researcher in the Bay Area and most recently as an internet research analyst in the entertainment industry. She was fascinated by languages and how words shifted meaning and usage across cultures and time. Survivors include her five siblings. 

Francis A. Martin III, ’69 (communication), of San Francisco, June 29, at 75. He served in the Marines in Vietnam. His career in broadcast television lasted more than 30 years, including terms as manager of KRON-TV and president of Chronicle Broadcasting. He served on numerous corporate boards, including the Associated Press, Metrocall and Hibernia Bank. He especially loved the city of San Francisco and lived on Telegraph Hill for decades. Survivors: his wife, Elizabeth; sons, Francis IV and William; eight grandchildren; and four sisters, including Candycy, ’63, and Priscilla Martin Tamkin, ’71. 

1970s

Randal Wayne Samstag, ’70 (political science), of Bainbridge Island, Wash., July 22, at 70, in a bicycle accident. After graduation, he volunteered in the design and construction of rural water projects in southern Mexico, then earned a master’s degree in civil engineering at UC Berkeley. Over the following four decades, he designed wastewater treatment plants throughout the United States and internationally. He continued to volunteer his services as a project manager in Ecuador and Nepal. He wrote more than 100 reports and 50 book chapters and actively supported the International Water Association. He also campaigned to reduce pollution from power plants in western Washington. Survivors: his wife, Gloria Saylor; former wife, Jeannette Alexander; daughter, Katherine; grandson; and sister.

Matthew Edwin Seaman, ’78 (biological sciences), of Yakima, Wash., March 28, at 62, following a struggle with depression. He ran track, sailed and was a member of Sigma Chi. His medical studies at Vanderbilt U. were followed by residencies in Los Angeles and Salt Lake City. Board certified in internal medicine and emergency medicine, he worked as an emergency room doctor in eastern Washington, where he also pursued his love of skiing. He was predeceased by his brother, Chris, ’77, and his survivors: his wife, Linda; daughter, Heather; mother, Grace Rexroth Seaman, ’51; and brother David, ’82, MS ’83.

1980s

Andrea Crosby MacGillivray, ’85 (electrical engineering), of Boonton, N.J., June 20, at 55. She was a member of Delta Gamma. She worked first for Hughes Aircraft, then earned a bicultural MBA from the U. of Navarra in Barcelona, Spain. In her later career in Barcelona and London, she worked...
for Rickett & Colman and CH Werfen and held executive positions with Johnson & Johnson, Hoffman La Roche, Bayer Health Care, Magellan Biosciences and Endo Pharmaceuticals. After retiring to Puerto Rico, she continued to mentor women engineers. She remained an innovator throughout her life. Survivors include her three siblings.

BUSINESS
Lyman Stafford “Butch” Logan Jr., MBA ’62, of Sunnyvale, June 20, at 80. He was an entrepreneur in real estate, computing and finance. He helped create a real-time computerized tracking system for Southern Pacific Railroad and developed computer systems for cities and housing authorities. He enjoyed tennis with the Bay Area Tennis Society, dances with the Stanford Singles Club and singing bass in the Peninsula barbershop ensemble. Survivors include his brother and sister.

Raymond Edward Miles, PhD ’63, of El Cerrito, Calif., May 13, at 86. He was a pilot in the Air Force. His devoted nearly 50 years to UC Berkeley, where he was a professor of management, director of the Institute of Industrial Relations and dean. He was also an experienced world traveler, active athlete, avid sports fan and dedicated youth baseball coach. He was predeceased by his wife of 62 years, Lucile. Survivors: his children, Laura, Grant and Kenneth; and seven grandchildren.

EDUCATION
Louanne Moloney Holland, MA ’58, of Kenilworth, Ill., July 11, at 83, after a lengthy illness. She taught high school for two years and then worked for the United Way for two years. As an early leader of the Chicago Foundation for Education, she devoted 33 years of volunteer service to assisting teachers. She was also president of the Junior League of Evanston. She enjoyed playing tennis and attending performances of the Chicago Symphony, Lyric Opera and the Goodman Theater. Survivors: her husband, Bill; children, Jeff, ’82, and Stacey; and six grandchildren, including Drew, ’17, and Kent, MBA ’16.

Donald Kenneth Sharpes, MA ’68, of Walnut Creek, Calif., August 23, at 84, of pancreatic cancer. He earned a PhD at Arizona State U. and then embarked on an academic career with many stops around the world. He taught at the U. of Maryland, Virginia Tech, U. of Maine, U. of Virginia, Utah State, Weber State and Arizona State; held fullbrights in Malaysia, Cyprus and Denmark; worked for the Department of Education; and held visiting appointments in Great Britain, South Africa, China and the United Arab Emirates. He published numerous books, articles and chapters in the field of education. Survivors: his partner, Marie Lichauro, ’76.

Floyd Leon Paulson Jr., PhD ’69, of Portland, Ore., August 7, at 84, of cancer. He served in the Army and earned an MA from San Francisco State. As a program assessment specialist for Multnomah Education Service District, he addressed the needs of local schools and conducted research in educational psychology, focusing on the use of portfolios in education. Survivors: his wife of more than 50 years, Pearl (Roosinick, PhD ’72); two children; and two grandchildren.

Sally Jean Klimer, PhD ’74, of Bowling Green, Ohio, March 9, at 83. She was a professor at Bowling Green State U., where she held a joint appointment in the College of Health and Human Services and the College of Education and Human Development. She was an active supporter of the League of Women Voters and National Association for the Education of Young Children. Her professional and personal interests allowed her to travel extensively and visit six continents. Survivors: her sister.

ENGINEERING
Dean Stanley Shupe, MS ’61 (mechanical engineering), of Florence, Ky., May 21, at 81. He earned a PhD from MIT and spent most of his career at the U. of Cincinnati. His ability to explain difficult concepts gained him awards for teaching. His research focused on engineering economy and heat transfer. He was also a consultant on numerous public sector projects. He devoted time to his church and to his interests in theology, environmental protection and social justice. He was predeceased by his first wife, Alma. Survivors: his wife, Donna; daughters, Nancy Shupe Mathew and Ellen; stepdaughters, Amy Scott, Tracy Mann and Holly King; and 10 grandchildren.

Gregg Woodford Dixon, MS ’66, PhD ’70 (mechanical engineering), of Middleville, VT., June 24, at 76. He was a member of NROTC and met his wife at the Stanford overseas program in Tours, France. After serving in the Navy’s nuclear submarine program, he began his academic career at CSU-Northridge, including a term as department chair. He spent two sabbaticals in Vienna training weapons inspectors for the International Atomic Energy Agency. In 1993, he helped found the mechanical engineering department at the U.S. Coast Guard Academy. He was an avid marathoner and triathlete, advocate for bicyclists, youth sports coach, Sierra backpacking expedition leader and church choir member. Survivors: his wife of 51 years, Valerie (Wilde, ’66); children, Christina, ’94, Mark, ’97, and Warren; and grandsons.

Humanities and Sciences
Hubert Rene Halkin, MA ’62, PhD ’63 (mathematics), of Idyllwild, Calif., May 26, at 82, of heart failure. He worked for Bell Labs and then spent his academic career at UC San Diego, where he was department chair for seven years. His research was primarily in the field of mathematical control theory. He received a Guggenheim fellowship with visiting appointments at the U. of Louvain and the U. of Montreal. In retirement, he opened a gallery and restaurant. He also enjoyed rock climbing, cross-country skiing, snow camping, mountain biking, hang gliding and sailing. Survivors: his wife, Kathleen; children, Christopher and

Two-Time Olympian and Software Entrepreneur
As a former competitive swimmer and tech innovator, Brian Job understood challenge. But his battles with mental illness and addiction ultimately proved too great, undercutting an outsize talent and a promising career.

When he was 16, Brian Gregory Job, ’73, won the bronze medal in the men’s 200-meter breaststroke at the 1968 Summer Games; two years later, he set his first national record. In 1970, he broke national records five of the six times he was in the water at the NCAA swimming championships. Job went on to qualify for the 1972 Olympics, although he failed to medal.

Interviewed by Sports Illustrated in 1970, Job spoke candidly about the relentless pressure his mother placed on him growing up. “I hated [swimming] with a passion,” he said. “I wouldn’t want to wake up in the morning, because I knew I’d have to do laps.”

Patrick Moore, ’73, Job’s Beta Theta Pi fraternity brother, recalls, “He was a wonderful guy, the smartest guy in the room without having to talk about it.” Moore watched as Job, who earned an MBA from Harvard, launched two Silicon Valley start-ups. “Via Video made software before it was called software. Anything technical, Brian could do it.”

The second venture’s failure precipitated Job’s decline. Moore said. “He started talking faster than anybody could process, and behind all that intensity we could see there was mental illness.”

His condition spiraled downward during his final months, until the day his body was found by the manager of the Glass Slipper Inn, a straight shot down El Camino Real from the Stanford campus.

In addition to his sister Lisa, Job is survived by his siblings Brenda, ’75, and Stephen.

—John Roemer
Sherrill; three stepchildren; two grandchildren; and seven stepgrandchildren.

**Dexter George Morrill**, MA '62 (music), of Ithaca, N.Y., July 2, at 81, of progressive supranuclear palsy. He was a Ford Foundation Young Composer Fellow, taught at Colgate U. and was Charles A. Dana Professor of Music Emeritus. In addition to his work as a composer, he researched big band history and digital music synthesis. He received multiple composition grants from the National Endowment for the Arts and his works were performed in the U.S. and abroad. Survivors: his wife of 56 years, Barbara; daughters: Allison Chatranych and Jennifer; and two grandchildren.

**Byron Kenneth Beck**, MA '63 (history), of Rock Island, Ill., June 20, at 78. He taught history and comparative religion at Black Hawk College in Moline, Ill. He was an avid researcher of family history and a choir member at St. John’s Lutheran Church. Survivors: his wife of 46 years, Dorothy White; and children, Amanda and Adam.

**Craig Kendall Comstock**, Gr. '82, of Ashland, Ore., March 20, at 58, of cancer. He was a Ford Foundation Young Composer Fellow, Charles A. Dana Professor of Music and University Distinguished Professor of Music, published in literary journals and wrote extensively about music. He coordinated “Cas- serole Kitchen,” providing meals for those in need by several Starkville churches, for which the organization was recognized with the Mississippi Governor’s Award for Community Faith-Based Service. He especially loved the mountains of his family home in North Carolina.

**LAW**

**Gordon M. Jacobs**, JD '60, of Sebastopol, Calif., July 28, at 84, of pancreatic cancer. He worked as a stockbroker in San Francisco and then started his own investment advising business. He enjoyed the arts, current events and travel. Survivors: his wife, Bärbel; daughters, Alexandra and Lisa; and two grandchildren.

**MEDICINE**

**Thomas Rabwin Rykoff**, MD ’60, of Beverly Hills, Calif., August 10, at 84. He interned in Los Ange- les, but decided to follow his father into the wholesale grocery business, a career that allowed him to combine his love of good food with his business instincts. He was a fan of bas- ketball, football and horse racing and completed the New York City marathon four times. Survivors: his wife, son, Mark, whose stepchildren, Stephen, ’58, JD ’60; Brian Austin Cason, MD ’78, of Redwood City, August 4, at 66, of ALS. He specialized in cardiac anesthesia and critical care medicine. He spent his career at UC San Francisco and the San Francisco Veterans Affairs Medical Center. He was a professor of clinical anesthesiology and perioperative care and served for many years as chief of anesthesiol- ogy and vice chair of the department of anesthesiol- ogy and perioperative care. He also played classical and flamenco guitar and frequently appeared on stage in support of various Bay Area flamenco dance companies. Survivors: his spouse, Kathy; son, William; his stepdaughters, Theresa and Mauren; three grandchildren; and stepmother, Lois Cason.

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IN THE SPRING OF 2018, my wife, Lynn, went in for her regular mammogram. The technicians didn’t like what they saw, and a subsequent MRI and biopsy revealed that Lynn had triple-negative breast cancer. The tumor was large, and the cancer was advancing into her lymph nodes. She was stage 3.

In the long weeks that followed, I thought about a sign I’d seen at our good friends’ cabin. It read WASL, for “We are so lucky.” Our friends have known more than their share of tragedy, but they’ve always maintained that they are so very lucky.

In the long weeks that followed, I thought about a sign I’d seen at our good friends’ cabin. It read WASL, for “We are so lucky.” Our friends have known more than their share of tragedy, but they’ve always maintained that they are so very lucky.

I thought about their motto as I tried to convince myself that, for all the scary statistics associated with Lynn’s diagnosis, we were also so lucky. I told myself that we were lucky to be otherwise reasonably fit and to have a strong relationship and the support of family and friends, and that we were profoundly lucky to have access to good care. And I believed it most of the time.

I believed it in part because Lynn views each day as an opportunity for light rather than dark. To her, a day in which the glass is half full is actually kind of a bad day. When people have that kind of attitude, others tend to think they were born with a sunny-side-up approach to life. But that’s not giving them their due. It requires them to make certain choices each day—to believe in others, to believe kindness and goodwill are available, and to not waste time criticizing others. It requires that they take joy where they find it and that the starting orientation in any endeavor is toward hope.

But Lynn and I are profoundly lucky in a more literal sense. We were born into loving families with healthy bank accounts. Our careers and life experience helped us find the best possible care. We could make choices that offered Lynn the best chance to live. And today she is doing well, with our fingers remaining firmly crossed for the future. But this has also been a reminder that our good fortune is largely because of an inequity, that we live in a country where the pursuit of happiness, including access to good health care, is less a human right than a function of one’s zip code. Our luck is largely the fruit of random selection. If you were to press a global reset button and everyone on the planet were reborn into different circumstances, who’d be lucky then?

Being lucky does not mean you’re given a pass from life’s tragedies. No one dodges those bullets. But it does mean you get a privileged place in the life lane with the least traffic, fewest obstacles and best odds to survive what life brings your way. And it means you are blessed, as we have been, to receive a showering of human kindness that makes the journey ahead possible, whatever its outcome. And that is more than enough.

We are indeed so lucky. But good luck is fundamentally a reminder: to make our communities more inclusive, to embrace those around us, to smile and weep with those we love. And to leave in our journey’s wake a mist that reflects the sun.

Dave Iverson, ’71, and his wife, Lynn Fuller, ’71, live in Oakland. Email him at stanford.magazine@stanford.edu.
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